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SOME PRINCIPLES OF EVIDENCE RELATING TO THE ANTIQUITY OF MAN.*

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During the last decade a large number of human relics have been found in American deposits of known geologic antiquity. The discoveries by Abbott in the Trenton gravel are classic; the discoveries by Miss Babbitt in the Mississippi terraces are almost equally well known; and there are half a dozen other discoveries which have not only convinced archæologists and geologists of the great antiquity of man in America, but have tentatively fixed the period of his birth. The period thus fixed is the later part of the later of the two great ice invasions of the pleistocene.

These more important discoveries of the decade have stimulated research and thus begotten new discoveries; and every year witnesses the record of additional evidence of human antiquity on the western hemisphere. But this evidence is not of like value; much is inherently defective—so defective that it is necessarily rejected in judicial summation; a much smaller portion is apparently complete at the first blush, and carries conviction to some, yet when carefully scrutinized is found so far defective at some point that it can not be accepted by the conservative student; and a relatively small part of the whole is inherently complete and apparently decisive. Now the minds of men are variously constituted; what is decisive evidence for one is indecisive to another, and but a suggestion to a third; and thus it has come about that scarce two men are exactly agreed as to the purport and validity of the voluminous testimony con-

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cerning the antiquity of man in America. So, in view of the recent activity in archæologic research, and in view of the diversity of opinion concerning the antiquity of man, an examination of the principles of scientific evidence as applied to the discussion of this subject would seem timely; and it is not inappropriate that this examination should be undertaken by a geologist, since the whole question pertains to geology as closely as to anthropology.

The leading principles may be stated and discussed in a number of simple propositions, some of which pertain specifically to the sciences of anthropology and geology, while others are more general and pertain to the entire body of science.

The foremost among the specific propositions are the following: It is a fair presumption that every artificial object found on the surface of the land or on the bottoms of rivers, lakes, bays and seas is modern. The agencies of geologic change are in constant operation; the processes of weathering, of transportation and of corrasion are constantly at work upon the land surface, and all objects on or near it are quickly destroyed or transported; either one or both alternately of the never-ceasing processes of degradation and deposition are constantly at work in rivers, lakes, bays and seas, and all submerged objects are quickly transported or buried; and the rate of progress of these processes ever at work upon land and in water is dependent upon a greater variety of conditions and is so variable that no standard for its measurement ever has been or ever can be devised. Some portions of the land surface and some portions of the sea bottom are older than others, and some are indeed exceedingly old; but even when their age is determined the determination affords no means of measuring the antiquity, either relative or absolute, of artificial objects fortuitously distributed over them. Moreover the earth now teems with a population far more numerous than it could have supported before the days of human control of the natural forces and before the days of written records; these modern men represent every stage of culture through which their kind passed in the long struggle for supremacy over all other living things; the objects of their multifarious arts are scattered over broad plains, fertile valleys, swelling hills and rugged mountain ranges, and even over the bottoms of rivers, lakes, bays and seas in numbers infinitely exceeding those of all the prehistoric races combined. Some implements, weapons and utensils found upon the surface are undoubtedly ancient; but in view of the diverse stages of culture of the modern period there is no means of proving by inherent evidence that any given stage of prehistoric culture is of any given antiquity. So far as the inherent evidence of the object in its association is concerned, there are no means of demonstrating great antiquity for any surface-found relic. Again the condition of the exterior of the object, whether oxidized,

decayed, or incrusted, affords no criterion of antiquity beyond a generation or two; for the processes of oxidation, decay and incrustation depend upon a great variety of conditions, the rates are exceeding variable, and no reliable standard for the measurement of antiquity from superficial alteration of objects ever has been or ever can be devised. Some superficially oxidized or incrusted objects are indeed ancient, but some of the newest objects are also oxidized or incrusted, while some of the oldest are free from any such alteration.

It is a fair presumption that any object found in a rock shelter or above a stalagmitic floor in a limestone cavern is modern: Most rock shelters represent soft strata overlain by hard ledges; yet, whether this is true or not, they are commonly produced by a diversion in the course of a neighboring stream or storm-filled runnel in such manner that the cliff is sapped and the softer stratum exposed to the agents of erosion; and even when the shelter is subsequently refilled by water-borne *detritus* or subaerial talus, the filling is commonly but the result of a slight alteration in the course of stream or runnel such as takes place in every decade, if not in every year, of modern time. The enormous precipices walling in the gorge of the Niagara, the canon walls of the Mississippi between St. Anthony's Falls and Fort Snelling, the cliffs confining the Genesee below its falls at Rochester, and the precipices forming Watkins' Glen, alike illustrate and measure modern erosion, effected since the geologic record of past time was closed with the latest episode of the pleistocene. Along most of the waterways of the land there are lines of cliffs and precipices which in like manner represent post-pleistocene erosion; and when rock shelters occur within these cliffs they are but Lilliputian crannies in Brobdignagian crags, and commonly represent only cubic feet or yards of erosion, while the cliffs themselves represent cubic furlongs or miles. To the geologist who deals even with the vast eons of tertiary time, and to whom the cataract is evanescent and the lake but a fleeting shadow upon the vast record of the past, the rock shelter is the thing of an hour or of a moment only. Most limestone caverns are produced directly by a wide reaching and ever active process of rock solution; the waters conveyed to the earth's surface by the rain-drop and snow flake attack and dissolve nearly all rocks, and particularly those of calcareous composition; when the waters are charged with the acids liberated by growing and decaying vegetation, they attack the rocks with still greater energy; and so the waters born of the storm and armed with the humus acids penetrate and permeate the strata of the earth and, in limestone terranes, form subterranean channels, which sometimes grow into great caverns occupied by veritable rivers. The process of cavern formation is in rapid operation to-day, and in certain localities in western New York, in Wisconsin, in Iowa, and elsewhere, in which the

limestone strata are imperfectly protected by glacial drift, many caverns with their attendant sinks have been formed since the last episode of the pleistocene. The solution and transportation of rock strata by the action of subterranean waters is one of the minor processes of that ever-acting degradation by which mountains are cut down, plains lowered, valleys deepened, and continents gradually carried into the sea; but the operation of this minor process is so slow in comparison with the major one operating on the land-surface that surface degradation quickly overtakes subterranean degradation, first exposing and then obliterating the subterranean channels, so that the cavern like the cataract is evanescent. Moreover, observation in many parts of the world has shown that the animal and vegetal relics found in caverns above the stalagmitic floor are generally modern, and frequently represent the period of civilized industries and domesticated animals. It is true that the stalagmitic floor found in large numbers of caverns on both sides of the Atlantic, commonly resting upon a characteristic red earth which is sometimes charged with human relics and the remains of an extinct fauna, appears to stand for a period of transition from exceptionally rapid to exceptionally slow rock solution and cavern formation; and by ascribing the transition to climatal vicissitudes, and by accepting the direct testimony of the Fauna of the cave earth as well; the transition period may be provisionally correlated with the later ice invasion of the pleistocene; yet the stalagmitic floor, like glacial drift of the north, and like the various correlative deposits of lower latitudes, only demarks the geologic past from the present and fixes the earlier limit of that period to which students apply the term "modern."

It is a fair presumption that any stone object of doubtful origin is natural. In transportation by rivers, pebbles are worn rounded and polished, and the wear, rounding and polish may be undistinguishable from the product of art; in transportation by waves, pebbles are worn into distinctive shapes and polished in a manner suggesting art; in transportation of glaciers, pebbles are ground and polished in a great variety of ways, only a part of which can be said to be known to man; in all modes of transportation, pebbles and large masses of stone are subjected to impact against one another and against other substances in such a manner as to produce every type of fracture known to art; under natural conditions of cleaving due to frost and other agencies of weathering, a great variety of fracture is developed; and so the conservative student sees no rounding, no polish, no fracture, in any stone object that may not have been produced by natural means. It is true that large numbers of stone objects have been artificially fabricated, and that in many cases the inherent evidence of fabrication outweighs the presumption in favor of natural origin; but in all such cases there is a tangible, definite and obvious means by which the natural and artificial

are discriminated. When the object has been ground, or polished, or fractured in such manner as to indicate that its form represents a preconceived idea—a definite and intelligible conception,—then the evidence of artificiality outweighs the conservative presumption. But it should be noted that this evidence of artificiality is not, and from the very nature of the case cannot be, derived from a single object: When the unknown stone object approaches the form of a known implement or weapon, an artificial origin may indeed be justly inferred because related conceptions are exemplified by both; the origin of the neolithic implement or weapon is inferred at a glance by the student who has acquired familiarity with the concepts of neolithic man, but they are frequently interpreted erroneously by laymen; while paleolithic implements were spurned by geologists and archæologists for decades until their numbers became such as to prove that all represent a type and exemplify a conception now recognized by a limited number of trained students, though commonly misinterpreted by the rest of the world. The paleolithic belongs to a primitive or phylogenetic or erratic type; there is no fracture in its make-up that might not be natural; commonly there is no group of fractures that might be natural; its form also might be and was long considered natural; its use has never been confidently ascertained; and nothing but its obvious representation of a definite conception (evident only when large numbers are examined) convinces students of its artificial character. Now the paleolithic represents a stage of culture; but it is not safe to presume that that stage of culture existed within any land or during any period far removed from the place and the times within which paleolithic man is known to have abode. Thus, while paleolithic man is known to have flourished in Europe and America during late pleistocene time, it is not safe to assume, *a priori*, that he flourished at the same time in Africa and Australasia, or that he flourished anywhere during that early pleistocene time which has recently been shown to be ten or more times as remote as the last great invasion of northern ice; and if human relics ever come from the older deposits, they must be assembled in even greater numbers than were the far newer paleolithics, and must be classified and discriminated from natural objects by criteria not yet devised.

It is a fair presumption that any unusual object found within, or apparently within, an unconsolidated deposit is an adventitious inclusion. Every cautious field geologist accustomed to the study of unconsolidated superficial deposits quickly learns to question the verity of apparently original inclusions; he may, it is true, exhaust the entire range of hypothesis at his command without satisfying himself that the inclusion is adventitious; yet he is seldom satisfied that he has exhausted the range of possible hypothesis as to the character of the inclusion, and hesitates long before accepting any unusual association as veritable. His

case is not that of the invertebrate paleontologist at work in the paleozoic rocks, to whom a single fossil may carry conviction; for not only are the possibilities of adventitious inclusion infinitely less in solid strata, but the mineral character of the fossil is commonly identical with that of its matrix and so affords inherent evidence of the verity of the association. Nowhere, indeed, in the entire range of the complex and sometimes obscure and elusive phenomena of geology is there more reason for withholding final judgment based upon unusual association than in the unconsolidated superficial deposits of the earth; and it is only where there is collateral evidence that such testimony is acceptable to the cautious student.

It is a fair presumption that an isolated association is adventitious. Nature is prodigal of phenomena and consistent in operation, and these facts are so fully recognized by rational beings that they esteem lightly an observation which can not be repeated. The first step in inductive science is observation and the second is generalization, and if only a single observation be made induction fails; it is true that imagination may span continents, bridge oceans, roam the heavens, and produce additional phenomena upon which generalization may be propped, but faulty observation and far-fetched generalization are the bane of science. When the age of a rock formation is in question, it is not the finding of one but of many fossils, and not by one individual but by all individuals who may see fit to visit the locality, that the question is decided; when Huxley demonstrated the affinity between man and the anthropoid apes, it was not by one but by many anatomic preparations, certified not only by his own observation, but by that of all anatomists who chose to examine them; even a discovery of so little immediate importance to man as that of an asteroid, a comet, or the satellite of a distant planet, is not finally accepted on the testimony of a single observation and finds no place in science unless all other suitably equipped observers can repeat the observation; indeed, in the whole range of conservative science, no weighty conclusion is based on a single observation.

It is a fair presumption that an incongruous association is adventitious. Natural phenomena are intimately related and commonly represent links of definite sequence, and this harmony is consciously or intuitively recognized by rational beings; and so discord engenders a suspicion that the prevailing harmony has been adventitiously interrupted. The botanist has a term for sports, the zoologist for monstrosities; the physicist recognizes the aberration of sound; the paleontologist is constantly confronted with anachronisms in the distribution and sequence of organic life; but these interruptions of prevailing harmony in nature are only considered abnormal with respect to certain laws and are collated and systemized as bases for other laws. Yet the incongruous association is not commonly accepted as a

basis for generalization unless its verity is established by collateral evidence. Thus, the archæologists of the present generation have shown that man passed through certain stages of culture which correspond vaguely with certain episodes in the pleistocene history of the earth; that in general paleolithic art preceded neolithic art, and neolithic art preceded the stage of varied industries and manufactures; and in a general way that the contemporaries of the pleistocene mammalia used paleolithic implements, while the users of finely chipped implements are quite recent; and so much testimony as that offered by a neolithic object found with an extinct fauna is always weakened by the incongruous association.

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But the postulates growing out of these specific propositions may be outweighed, and indeed have been outweighed in all the discoveries by which great human antiquity has been proven to conservative students, by direct or collateral evidence. Such direct and collateral evidence should, however, be weighed in accordance with certain general principles, some of which may be stated and discussed as a series of propositions, including the following:

In inductive science the value of evidence varies with its volume, its consistency, and its cumulative character. It is a primitive doctrine, born of crude conceptions, nurtured by ecclesiastical dogma, and fostered by judicial necessity, that all evidence is either strictly true or wholly false, and moreover that final judgment must be reached in each case howsoever incomplete the available evidence may be; and the commonly accepted rules of evidence form a device for sifting testimony, detecting error and mendacity, and reaching final judgment despite the insufficiency or contradictory character of the available evidence. But the doctrine and the method growing out of it are eminently unscientific. Inductive science affords a method of reasoning from particular phenomena to general relations and principles, each phenomena is an unimpeachable witness whose testimony can be fully interpreted only in terms of that of related phenomena; the witnesses gather strength and intelligibility with numbers; and it is the great merit of the inductive method that final judgment may, and indeed must, be postponed until the evidence is complete. An isolated sport may be meaningless to the botanist, but a score may form a basis for a valuable generalization, and a hundred may bring to light an important principle; the first crude observations on meteorites only gave play to man's fancies and added nothing to exact knowledge, but extended and systematic study of these always incongruous apparitions, at the hands of Smith, Newton, Roche, Lockyer, G. H. Darwin and others, has resulted in one of the most notable advances in science of the century; the

finding of the first eocene fossil in the pliocene phosphate beds of South Carolina was simply a puzzle to Toumey, but the finding of hundreds of the older fossils in the newer deposit has thrown more light on the conditions of origin of an interesting deposit than all of the more congruous discoveries combined; and so in each branch of science, isolated observations may be at first incongruous, but become consistent and significant with multiplication, and finally by the cumulative character of their combined testimony form bases for new generalizations and new principles. Thus, at the time of the discovery of an obsidian implement in certain pleistocene deposits in Nevada some ten years since,* the discovery was nearly isolated, both in geography and geochrony, and thus of little significance; but since that time Abbott's discoveries in the Trenton gravels have been verified and repeated by a score of students, Miss Babbitt's discovery of quartz chips in the Mississippi terraces has been made and verified, the Ontario hearth has been discussed by a trained geologist, and the Metz paleoliths have been exhumed from the glacial gravels of Southern Ohio; these discoveries extend over a considerable part of the country, and were made in deposits of definitely determinate age; and it is a fact of prime importance that these deposits are coeval among themselves and with the beds yielding the Nevada obsidian. So the otherwise doubtful evidence of a discovery gains strength from the consistent and cumulative evidence of other discoveries in different parts of the land.

In inductive science the sufficiency of a given body of evidence varies inversely with the importance of the conclusion to which it leads. A single fossil or a dozen fossils may suffice to determine the age of a local formation in which a score of students are theoretically interested (and the restricted significance of the conclusion is intuitively, though perhaps unconsciously, recognized by the students when it is formed), yet, tens of thousands of fossils have not sufficed to satisfy conservative geologists that any great rock group of America is exactly coeval with the corresponding group in Europe; every naturalist had long recognized, and none disputed, the existence of individual variation among plants and animals, yet when the law governing such variation was formulated and implanted in the philosophy of science by Darwin, it required the carefully recorded and freely discussed reservations of a generation of naturalists to establish the conclusion; in early days the ever-varying hand or foot or forearm or stride sufficed to settle questions of linear measure, but with the increase in value of lands and commodities the bases of linear measure have been refined to a degree incomprehensible to uncivilized man; and while idle figments of untrained imagination formed a sufficient basis

*American Anthropologist, Vol. II, 1889, pp. 301-312.

for primitive folklore, the best efforts of the highest powers of observation and reasoning are required to form the basis of its colossal offspring, the philosophy of modern science. In exact thought, conclusions are not of like weight, and demonstrations are not of equal facility; judgment is not a tangible entity which exists but once and for all time, but an ever-varying standard of measure; and the acceptability of every conclusion depends in part upon its consequences. Now anthropology is perhaps the foremost branch of science, and perhaps the most important question in anthropology relates to the origin and antiquity of man; and by reason of the perhaps unequaled importance of the question, it is desirable that evidence concerning it should be carefully scanned as to quality and carefully measured as to quantity. Moreover, such evidences may be insufficient concerning one phase of the subject, yet at the same time sufficient concerning another phase, e. g., it would be logical to accept the testimony of the Nevada obsidian as to the cultural status of a possible pleistocene man, and at the same time to reject its unsupported testimony as to the existence of pleistocene man; or it would be logical to reject the testimony of the implement as a basis for any sweeping conclusion as to the origin, antiquity, or early condition of man, and yet place it on record as a silent witness whose testimony may become of value with research.

In inductive science every conclusion is tentative. The primary object of research is to determine the relations among phenomena, first, through observation, and, second, through generalization. But it frequently happens that a generalization based on a limited number of observations is materially modified by one or two additional observations, and so the conservative student learns to proceed cautiously, to constantly spur observation and check generalization, and to modify his judgment with each new acquisition of evidence. In the days of the Lyellian classification of the tertiary formations by ratios of contained fossils, certain formations of the Atlantic slope were thrown alternately into the miocene and pliocene, according to the varying success of successive collectors in gathering and identifying the fossils; the asteroid hunter carefully notes the position of the unfamiliar celestial body, and then calmly awaits opportunity for further observation before making final entry in the record of the known solar family; and the naturalist penetrating untrodden wilds fixes mentally the habitats of a score of species as tentatively determined by each day's study, yet makes no final record of any until his work is done, and then holds his conclusions subject to modification by any subsequent observer. Indeed, no conclusion in inductive science can be final and unassailable until the cosmos is encompassed and all the relations of each phenomenon to all other phenomena are made known. Thus, the Nevada obsidian is an isolated and incongruous phenomenon, and any judgment concerning it must be

of relatively little weight and subject to modification with new discoveries, and it is perfectly logical to accept the verity of the association and record the fact of its finding, yet to withhold immediate judgment as to its significance and allow the interpretation placed upon it to vary with the progress of discovery, either in the same deposit or in other parts of the country.

In exact knowledge the sufficiency of evidence and the validity of conclusions vary inversely with the exactitude of the branch of knowledge affected. The character and objects of science are various. Mathematics is a device for reaching infallible conclusions from given premises, and the method, or mechanism, constitutes the science; astronomy deals primarily with the relations among certain material phenomena and only subordinately with the material phenomena themselves, its methods (which are borrowed from mathematics) constitute the principal part of the science, and so the branch of knowledge is exact in a high degree; physics deals with material phenomena and their relations, its sum comprises both methods and objects, and its methods in so far as they are mathematic are exact; but by reason of the complexity introduced by the consideration of material in connection with immaterial phenomena, greater conservatism is required in physics than in astronomy. In mathematics, to a less degree in astronomy, and to a still less degree in physics, the method is predominantly deductive and proceeds in accordance with fixed principles; and so axioms rather than evidence are weighed. In biology material objects are the principal subject matter of the science and methods are subordinate, and the exact methods of mathematics are inapplicable; in geology, which is a composite branch of knowledge trenching upon astronomy, touching biology, and overlapping far upon physics, the principal subject matter is material phenomena, and the relations of these phenomena are too complex to be discovered by any deductive method; in anthropology, which deals with the multifarious phenomena of all of the other sciences together with the infinitely more elusive and mysterious phenomena of the human mind, the matter of science is as everything and the method as almost nothing; and many conservative students of the diverse subjects of human thought hold that anthropology may not be considered a branch of science because of its many sided and elusive character. In biology, in geology, and in anthropology the method is necessarily inductive and proceeds along lines only determined as research progresses; and so evidence concerning phenomena, rather than axioms concerning the relations among the phenomena, are weighed.

This is true to a larger extent in geology than in biology, and to a far larger extent in anthropology than in any other branch of science; and just in the order in which it is true, the necessity for careful scrutiny of evidence and for conservatism in reaching conclusions increases. Logic—twin sister of mathematics,

though now so well grown as to be dignified by its votaries as the Science of sciences—logic indeed affords a device for reaching just conclusions from trustworthy premises; it has the merit over mathematics that it deals with qualitative as well as quantitative relations; but just so far as it rises into the domain of intrinsic as well as simply extrinsic properties and relations, it falls short of the exactitude of mathematics. The food of mathematics is axioms, and its fruit is quantitative relation; the food of logic is premises (which in natural science are phenomena), and its fruit is philosophy; but the fruit can never surpass the source whence it springs, no combination or permutation of error can result in truth, no conclusion can outvalue the premises whence it flows; and so neither the legitimate use nor the legerdemain of logic can supplant caution in scrutinizing evidence and conservatism in accepting conclusions. It is true that the mechanism of logic is as applicable to the sifting of evidence as to the testing of methods and the weighing of conclusions; but the contagion of original use has extended from the more exact to the less exact branches of science, and this special and fundamental use is seldom properly appreciated. Anthropology is the least exact of the sciences; and it is in anthropology that the demand for the careful weighing of premises and the assembling of voluminous evidence to justify given conclusions culminates.

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THE ALASKAN NATIVES OF FT. WRANGEL.

By Egbert Guernsey, M. D.

It was at Ft. Wrangel that we came in contact for the first time with the manners, customs and home life of the Alaskan Indian. He is, as seen either in his wild or semi-civilized condition, small of stature, evidently of Mongolian origin, and bearing in features and temperament unmistakable traces of his Japanese ancestry. Unlike the North American Indian he is industrious and ingenious in mechanical construction and design. It is not uncommon for the Japanese junk disabled on the ocean to drift along the great Japanese Gulf Stream, whose warm current tempers our north-western coast, and to be driven on onr shores. Captain George, the intelligent pilot of the steamer Elder, in the twenty years he has been upon the coast, can count more than a dozen of these junks with their complement of seaman wrecked upon the Alaskan coast. The island communication stretches from one coast almost to Japan, and the passage across Behring Straits is so short as to admit of free communication from one continent to the other.

The Indian tradition of the creation of the world makes all life come from the Raven. After he had created the world he

made man out of stone, but as this material would live forever, he destroyed it and made him out of a leaf. Before making man he made woman out of a strawberry blossom, making her supreme as the representative of the Crow family, while man, created last, is the head of the Wolf, or Warrior family. From them sprang the sub-families of the Whale, the Bear, the Eagle, the Beaver and the Fox. The Raven was originally white. He had an uncle who was a maker of the water. The Raven went to him, and while the uncle was asleep, filled his stomach and beak with water, and then attempted to escape through the chimney. The uncle waking, built a fire and smoked the raven black, who, as he flew away, dropped the water from his beak, making the seas and oceans. Property descends on the mother's side, and children always bear the tribal name of the mother.

The problem, what is to become of the Alaskan Indian, is one to which the attention of our Government should be seriously directed. Within the past twenty years the native population has diminished one-half, swept away by the hardship of their lives, their dissolute and licentious habits, and the ravages of disease, sometimes of the most disgusting form; in a few more years they will as a race have passed away, unless the Government adopts some radical method in their behalf. Very few old people are seen among them, the exposure in infancy and childhood sowing the seeds of consumption, which carries them off in large numbers, before they have reached middle age. Epidemic disease, from the entire lack of all sanitary regulations and medical care, are peculiarly malignant. Forty years ago an epidemic of small-pox carried off half the natives of Alaska. The smoke of their dwellings and the glare of the snow subject them to severe forms of ophthalmia, so that impaired eyesight and even blindness is very common among them. Public schools have already been established at Sitka, Juneau, Wrangel and Killisnoo, and at Sitka a Mission of the Presbyterian Board are gathering Indian children into the Mission House, and giving them instructions in trades and something of an idea of home life. * * * * * * * * * *

But all that has been done is only a drop in the bucket. Broader and more radical measures are needed now from our general Government to regenerate a race, which the tide of death is fast sweeping along to extermination. The first and most important requisite is hospitals sufficiently commodious toaccommodate all the sick who can be persuaded, or forced, if the demands of public safety require it, it enter the walls. * * * Make them wards of the State and place them in schools, which shall be their homes for a certain number of years, where they are taught the industries of civilized life. If the present generation is too far sunk in vice and tainted with disease to receive much benefit from these measures, the initial step will be taken in the

hospital to check the contamination of disease among the young, and in the schools, to send our children trained in a higher civilization, carrying with them and putting in practice the information gained in their years of study and mental and mechanical training. This work can only be accomplished by Government, and the question rests with our legislators at Washington whether the proper steps be taken immediately to save a race, with the bright promise of usefulness which this race possesses, if cared for, or whether they shall be left to drift on without thought or care to that extinction to which they are surely doomed unless the Government at Washington stretches out its strong arm to save them.

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THE STORY OF SKAGA BELUS.

By James Deans.

This remarkable legend I found amongst the Haida tribes of Queen Charlotte's islands, British Columbia. Although only a legend, it contains historical data enough to shed a gleam of light on the long-forgotten migrations of the early inhabitants of Northwestern America. And as such it is well worth preserving, not only in the valuable pages of The American Antiquarian, but by all and every one who take an interest in the subject in America and in other countries as well. But I must to the main point of my story, Skaga Belus.

Skaga is the name in the Haida language for a doctor or medicine man. The words *Skah gilda*, from which skaga is a contraction, means one with long hair, from their never cutting their hair, but always wearing it rolled up in a bunch on the top of the head. This makes them resemble the figures on the tablets in the ruined cities of South America. If those figures were priests, so likewise were the Skaga, whose functions amongst the Haidas is all that remains of an ancient priesthood —a fact of which I have many proofs. I have heard of many famous ones, but the greatest of them all was the subject of my story. Skaga Beelas or Belus was the most famous as well as the most remarkable of all who ever lived in Haida land or amongst any of the tribes on this Northwest coast. The account given of him by the Haida tribes is as follows:

Very long ago, our fathers and mothers tell us, lived a good Skaga. He was the best man that ever lived in Haida land; he was good and kind of heart, ever ready to attend the sick and to help the poor and distressed; always advising the people to love each other, because, he said, if they lived in unity there would be no wars nor bloodshed, nor no theiving; all the Haida tribes, instead of fighting and trying to destroy each other, would live and love one another like brothers and sisters. After

living amongst them many years, and having gained the respect of these people from the eldest to the youngest, he called them together and, to their sorrow, told them that he was going to leave them; that they were not to grieve over his absence, because after a while he would return and never again leave them. So wishing them all keel-slie (farewell), he took his departure. As to the mode of his going away I may say a few words. Some of the people say he died and was buried; others of them say that his body lay dead for a year and that his soul went to heaven, where it heard and saw wonderful things, along with their parents, in the beautiful country to which they had all gone. He told them that all who while here had led good lives were happy in that beautiful country beyond, and that at the end of life's journey would not only be met by their relations gone before, but would each one of them have homes prepared for them corresponding in beauty to the lives led by them while on earth.

When he left he was sorely missed by all the people, who never failed to look forward to his return. At the end of a year's absence he suddenly made his appearance amongst them again. After he returned he lived with them so long and grew so old, that excepting his spine, which alone he could use to move his back, all other parts of his body were dead and shrunken. If his life before he left was good, after his return it was better. Still anxious to teach them everything good, the more earnest was he to urge them to love and help each other, and above all to keep from inter-tribal wars. He further told them, if they did so they would become a great, a happy and a prosperous people. If, on the contrary, they fought tribe against tribe and made slaves of their brothers and sisters, they would become weak, because few in numbers, and at last a fair complexioned race of people from the land of the rising sun would come and take possession of their country and all their belongings, until their existence as a people would cease, their name be forgotten, and of their language nothing but a few names of places would remain. When these people came, they (the Haidas) were neither to kill nor ill treat them, because they would bring amongst them implements far better than the rude stone ones then in use. And he also told them that these people would give them a new and better sort of food. He, tradition says, conversed with them after that manner as long as his strength lasted, and with his latest breath could be heard to say, "Be kind to each other."

By the new sort of implements, the Haidas of to-day consider the small iron adzes (called toes) brought amongst them by the earliest traders, and the axes and other tools of the present day, a fulfillment of the first part of the prophecy; flour is considered a fulfillent of the latter part, while we colonists are believed by them to be the fair strangers from the east.

The Haidas are keen traders, and they have often told me that they were so out of respect to Belus. They also boast that they never killed a white man, for the same reason.

As regards the weird song which affected me so much, this may be said: Belus, it seems, told them that along with the evils which would befall them following their decadence would be dreadful diseases, which coming amongst them would spare neither youth nor age, and for the loss of their relations they would naturally feel bad; so as a means of relief he recommended them to hold sittings as before mentioned, because, said he, by coming to your sittings your spirit friends, as well as those who died before their time, would be able to learn something whereby they would be enabled to advance to higher homes (spheres), while presence at your sittings would cheer the lot of those left behind. Besides these admonitions, he also taught them the above mentioned song, or rather I should say lament, because it may truly be considered as one—the lament of Skaga Belus, a lament not only for the dear departed, but for the failing fortunes of the Haida people. He also told them that every time they met, in order to commune with their spirit friends, they were to sing it just before leaving for their homes. This they never failed to do, with its slow, weird and mournful numbers. The tune somewhat resembles the one usually sung in Scotland to the song "Land o' the Leal," or to some of the *bian orans* (mournful songs) of our Scottish Yeal. As far as the words are concerned, I am unable to give them, although I have tried for years to get them correct During a four months' stay with the Haidas the past summer (1889), I tried hard to get the words and tune; to my surprise I could not find one who knew anything of Skaga Belus, although in the same tribe twenty years ago every one, from the oldest to the youngest, knew him and sung his song. Instead of these weird songs of olden times, which now are seldom heard, such new ones (to these people) as "Nearer My God to Thee," etc., can be heard any time, day or night.

In conclusion, I shall say a few words while asking the question, Who was Belus?

Bol, Bel, Beluus, Belus, Baal, or as the Greeks called him, Apollo, was first king of Assyria. He conquered Babylonia from the Arabians, over which he reigned for twenty-seven years—from 1993 to 1966 B. C., or about four thousand years ago. After his death his son Ninus caused him to be placed amongst the gods, and he was worshiped as the sun at divers places and by divers people. The Jews had a temple wherein to worship him, with a grove arund it.* The Babylonians also had a temple for his worship.† This temple was the most an-

*Josephus, Antiquities, Vol. I.
†Ibid., Vol. II, 10.

cient and became the most magnificent at one time in the world. Amongst the Brittsh Druids May-day was called *Beil Teine* (Belus fire), because on that day they burned large fires to Biel. In the low-lands of Scotland a bone or large fire is called Beil-fire to this day.

The Chiapanecs, a very old branch of the Toltecs, say they were descended from Cham (Ham), the son of Noah, and that the first settler in Chiapas was Mae, or Imoe, or, as he is oftener called, Ninus. This Ninus was the son of Belo (Belus), who was the son of Nimrod, who was the son of Chus, who was the grandson of Ham. When or where these Chiapanecs got the name Belo or Belus, I can not say; but wherever they got it, it no doubt was from a people who pronounced the name Bel, Belus or Belinus, and not from a people who called it Baal. In looking over the pages of ancient history we find that the Pelasgi or Syrians, who lived on the sea coast of that country, pronounced it Bel. No doubt from these Pelasgi, who were great sailors, and were found all over the (then) known world, as well as making a settlement in Greece about 1883, B. C., came the Bel, Belus or Belinus into the west. How the Haidas came to get the name I have so far been unable to find any clue, except that the name is pronounced Belus instead of Baal. It is strange that a people living so remote as the Haidas should be, as well as most of the ancient nations, acquainted with Belus. They did not get the name from our people—quite the reverse. The story has passed through unnumbered ages down among them from sire to sun. Not the least strange is it that it was Belus who first taught them the occult sciences and to practice them as used to be done in ancient times.

There was nothing revolting in their meetings. Each person would sit quietly down alongside of each other, until an oval was formed, at one end of which was a small fire; at the other end, next the door sat the Skaga or medium. After a little quiet conversation one of the number would take up a song, in which all but the Skaga would join. The song would be like the following: "The good Skaga is here to-night, E ha ha, hac hoo. And through him our friends of the a-wohl (feast time) will come. Hydrel, hydrel (come, come), hak-weet (quickly)," etc. While the Skaga was talking all was quiet, unless a question was asked of the control. In the time between one control leaving and the next one taking possession they also used to sing, how glad they were again to hear from him, or her, as the case might be. And so on to the end, when finishing up with Belus' song, all went to bed. Judge Swan, of Port Townsend, thinks the Haidas are descendants of the ancient Aztecs. I believe myself that in remote times some connection existed between them.

ALTAR MOUNDS AND ASH PITS.

By Stephen D. Peet.

The subject which we have chosen for this paper is one of great importance, and one which has an especial bearing on the Mound-builders' problem. This will be seen as we proceed to unfold the facts which have come to light, but it may be well to consider beforehand some of the points which are involved in the study of it.

It will be noticed that the history of mound exploration began with the discovery of the altar mounds and the remarkable relics which they contained. The exploration of the ash pits is, on the contrary, very recent, and marks one of the latest events in archæological discovery. It was in the early days of archæology that the authors of the "Ancient Monuments", Messrs. Squier and Davis, began their exploration in Southern Ohio; but it was in connection with the altar mounds that the most remarkable discovery was made. This discovery was in the neighborhood of Chillicothe, the very place where these gentlemen resided. Here, in the midst of that very wonderful series of earth-works which then surrounded that city, and which were at that time in a very fine state of preservation, these gentlemen came upon that small enclosure to which they gave the name of "Mound City". The enclosure was by no means a "city", for it was but a little circle and contained scarcely more than thirteen acres of land, but it was a spot which proved very rich indeed in archæological treasures. The treasure house of Mycenæ may well have surprised the great explorer, Dr. Schliemann, but this with the discovery of the palace of Priam in Troy, may be said to have led to nearly all the explorations on the classic soil which have been carried on since that time, and to be in reality the starting point of classic archæology as it now exists. So we may say that the little enclosure which contained twenty-four burial mounds, which was situated in the valley of the Ohio river, was the starting point of archæological discovery in this country and the beginning of prehistoric science in America.

The idea that there were chronological horizons in America as well as in Troy or in Egypt may not have occurred to many, but this is the very point brought out by the study of the altar mounds and the ash pits. These are eminently tokens which prove that there was a succession of races or tribes among the

Mound-builders, and that each tribe or race left its record plainly written beneath the soil. While there are no buried cities here, and much less a succession of cities such as have been found in the great mound at Hissarlik; while there are no statues of kings which belonged to different dynasties, such as have been exhumed at Pithom in Egypt; yet in their rude way the Mound-builders did leave vestiges of themselves indicating diverse populations and distinct grades, so that we may easily separate one from the other. It appears now that there were dynasties or races in the mound-building era, which are as distinct as those recognized among the pyramid-builders of the East. The dynasties may not have as distinct a history and the monuments may not be as full of hieroglyphic records, yet the relics and the mounds do reveal a history of the past which is plain and true. The invasion of the shepherd kings into Egypt changed the records of that land. So the invasion of different tribes here changed the aspect of affairs, and we may recognize in the mounds the different grades of society, different modes of life, and even different race qualities, thus carrying out the analogy in many particulars.

The distinction between the Mound-builders and Indians finds illustration here. The study of the altars and the ash pits seems to confirm this distinction rather than to confute it. It will be noticed that the relics taken from the altars are not only different from those taken from the ash pits, but they show a very different condition of society, a different stage of culture, a different system of religion, and even give the idea that the occupations or employments of the people were also very different. This is an important point. We do not undertake to say who the Mound-builders were, nor do we hold for a certainty that they belonged to a different race or stock from the modern Indians; yet so far as their tools are concerned, we should say that the evidence is all in favor of a diversity of origin, the later people being allied with the Mongolians of the northeastern Asiatic coast, but the earlier people with the ancient races of the European continent.

Was there a division into epochs? The ash pits we may regard as belonging to the most recent people. They are so different from the altars that any one who has learned about them must have come to the conclusion that at least two classes of people must have occupied this same region, one preceding the other, but the more advanced being perhaps the earlier. We do not know who the people were who dug these pits and deposited their relics in them, but enough is known to prove that they must have been not only different from those who had erected the altar mounds, but they must have been a more recent occupants of the soil, and the probabilities are that they were a wilder or ruder people. This impresses upon us the fact that there

were probably several epochs in the mound-building period. The first epoch was that marked by the presence of the serpent-worshipers—the people who erected the great serpent effigy in Adams county, and perhaps the effigy mounds at Granville and Portsmouth—a people who afterwards migrated and became the effigy builders of Wisconsin. The second episode in the Mound-builders' history we may consider as the one which was marked by the altar mounds. It was the age in which sun-worship reached its height. At that time the sacred enclosures were erected; at that time the relics of the Mound-builders were offered in great numbers to the sun divinity. At that time the finest works of art which have been discovered were created, and at that time the most elaborate and extensive earth-works were erected, and the highest stage of civilization known among all the mound-building races was reached. The third episode in the mound-building period was that which is marked by the stratified mounds and by the chambered tombs. It is supposed that an unknown people—who possibly may have been the ancestors of the Cherokees—intervened between the sun-worshipers and the people of the ash pits and chambered mounds, and who left the tokens of their presence on the soil of Ohio. The ash pits mark the last episode of the mound-building period. We do not fix the date exactly, and yet there are some evidences which show that it was very near the historic age. It may possibly have been even subsequent to the discovery by Columbus that these remarkable relics were deposited.

Fig. 1.—Altar Mound at Clarke's Fort.

As to the ages represented a few words will be appropriate. The relics seem to belong to the stone age, and perhaps indicate to us the cult of that age; and yet those from the altar mounds are nearer the "bronze age" than to the stone. Perhaps we might class them with a "copper age," and from them learn the characteristics and the cult of that "age".

We have said that altar mounds were closely associated with sacred enclosures, and that both were probably the work of the class of sun-worshiping Mound-builders, but we find among the relics deposited on these altars many things which remind us of the cult of the serpent-worshipers, the two systems apparently having been mingled in the altar offerings. The ash pits, on the contrary, seem to have been associated altogether with the cult of a people who deposited their relics in graves rather

than in mounds, the large majority of them being in the midst of the cemeteries, in which many bodies were deposited, so that we are inclined to say that these were not the work of Mound-builders at all, but were left here by a later people who resembled the modern Indians. Still the relics discovered in the ash pits nevertheless remind us of the "age" of the Mound-builders, and the question arises whether there was not a practice of borrowing the art of relic making from one another among the prehistoric races, and whether this does not in itself suggest to us many things concerning the relation of the two classes of people in prehistoric times. We look to the relics for the records of the past. It may be that we shall find in these very relics taken from the altars and the ash pits the different leaves of the book which contains the history for which we are seeking.

The next point has reference to the religious symbolism which prevailed. We have spoken of this elsewhere, but the position taken is confirmed. Our opinion is that these altars mark the places where the sun worshipers offered their sacrifices to their great divinity—and that in them we find the symbolism of this cult. Our reasons for this belief are the following:

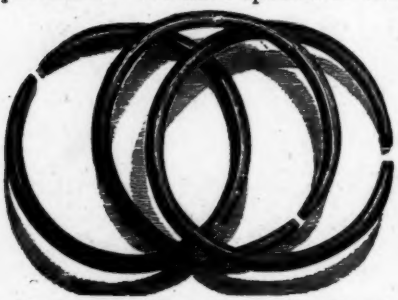


Fig. 2.—Copper Rings from an Altar Mound.

(1) It will be noticed that the altars were all contained in enclosures, which, owing to the uses to which they were applied, may well be called sacred enclosures. It is well known that the ancient inhabitants of Briton were accustomed to erect their stone altars within circular earth walls like these, and that on these altars they offered their sacrifices to the sun, sometimes immolating even human victims. This is true of the inhabitants of Mexico and of the Pacific Islands, who were also sun-worshipers. (2) The altars were evidently symbolic in their shapes. They were to be sure little more than shallow saucer-like fire beds, which were placed on the surface of the ground and filled with relics of various kinds which were offered to the sun. Many of them, however, were circular in shape; some of them contained a double circle, some the square and circle; occasionally altars contained crescents made from silvery mica, the shape of the crescents and the shining material of which they were composed giving the idea that they were the symbols of the great moon divinity, which in common with the sun was worshiped by these strange people. (3) The use of fire in the sacrifices. It appears that all the altars give traces of a "great burning." In some of them human bodies seem to have been cremated; in others stone

relics were deposited and reduced to fragments by the action of fire. The altars seem to have been kept open until fixed times, when the solemn rites were observed, The fires were lighted in the midst of the enclosure, the offerings were partially consumed while the people looked on, but afterwards smothered by throwing earth upon them, which became hardened into a crust over the altars, and upon this was erected the mound, which continued to be a silent monument to the sun. We now proceed to consider the contrasts between altars and ash pits, and their relics.

I. We first turn to the description of the altar mounds. These as we have said, were the earliest to be discovered, the majority of them having been explored by Messrs. Squier and Davis. Altar mounds, however, have been discovered in many places, and they now constitute an interesting class of archæological tokens. It was thought they were found only in the State of Ohio, but it is now known that similar mounds exist near Daven-

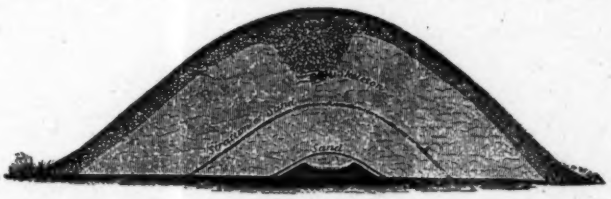


Fig. 3.—Altar Mound with Indian Burial Intruded.

port, Iowa, in various parts of Illinois, and a few among the effigy mounds of Wisconsin. This brings before us the question of the migration of the Mound-builders—a question which we shall defer for another paper. At present we shall speak of the altar mounds of Southern Ohio.

Let us consider the locations of the altar mounds. It may be said that the largest number and the most interesting specimens are those which were discovered near Chillicothe, Ohio. This is the first location. The second is not very distant from this. It is the group which was discovered on the north fork of Paint Creek, in the midst of the enclosure called Clarke's Fort. See Fig. 1. The third location is that found on the banks of the Little Miami river, not far from the Ohio river, some twenty miles east of Cincinnati.

There are altar mounds in other parts of the country, but they are seldom contained in enclosures, but are oftener the cremation places where bodies have been burned, the relics found upon them having been buried with the bodies. We may say that the serpent-worshipers erected altars, but they generally used them as cremation places. The sun-worshipers, however, used them not so much as cremation places as places for the deposit of costly offerings, though remains of bodies are sometimes found

(1.) We begin with the altar mounds at Mound City. This is an enclosure three miles from Chillicothe. It contained thirteen acres. Here within the walls were twenty conical mounds, all of which were explored, and the majority of them proved to contain altars. This puts it beyond question that they were places of sacrifice. One of these mounds was 17 feet high, 100 feet in diameter. It was a stratified mound, four strata in all; at a depth of 19 feet was a level floor of clay, slightly burned, and around this floor was a layer of silvery mica, formed of sheets which overlapped each other like the scales of a fish. This layer was in the form of a crescent, the outer edge of which rested on a ridge of sand six inches in height. The length of the crescent from horn to horn was 20 feet, its greatest width 5 feet. The mica sheets were about 10 inches or a foot in diameter, composed of what is called graphic mica. It is supposed that these crescents marked the unknown rites or ceremonies, and which may have been connected with the worship of the moon, as it is not supposed to have been a mound of sacrifice.

Fig. 4.—Double Altar.

Another mound of this group was 7 feet high by 55 feet base. This mound was stratified with eight layers of gravel, sand and earth. At the bottom was an altar of burned clay, 5 feet by 9. It was filled with fine dry ashes and fragments of pottery, copper disks, and above the ashes was a layer of silvery mica, in sheets, overlapping each other. Above the mica was a quantity of human bones. Another mound, 90 feet in diameter and 7½ feet in height, contained five layers and an altar. The altar was 10 feet in length and 8 in width at the base, 6 feet by 4 at the top; the dip of the basin was 9 inches; it was filled with ashes.*

This mound (Fig. 3) was composed of five strata, as follows: 1, gravel, one foot; 2, earth, three feet thick; 3, sand; 4, earth, two feet thick; 5, a stratum of sand; 6, the altar. The altar was a parallelogram, 10 feet by 8, 18 inches high. It contained a few shell and pearl beads and fragments of pottery. The intruded burial contained two skeletons, various implements of horn and bone, several hand axes and gorgets of stone, the shoulder-blade of the buffalo, shaped like a Turkish scimeter, an instrument made of an elk's-horn, used as a war-club, all exceedingly rude, and resembling articles used by Indians.

Another mound, 90x60 in diameter, 6 feet in height, had two

*See Fig. 3, also Ancient Monuments.

sand strata. It contained a large quantity of galena, 30 pounds in all. The galena was in small pieces; around this deposit was a layer of charcoal. The altar bore marks of intense heat. Still another mound, 140 feet in length, 50 or 60 in width and 11 high, with two sand strata, contained an altar 60 feet in length, which formed a basin not far from 18 inches in depth. Within this basin was another altar (see Fig. 4), 8 feet square. This altar seems to have been burned to the depth of 22 inches, showing that one altar had been built upon another, and fire had been applied at different times. It is supposed that three successive burnings had occurred before the altar had been covered. There was a thin layer of fine carbonaceous matter in the altar, a number of pieces of timber; other things would justify the inference that they had supported some funeral or sacrificial pile. A quantity of pottery, many implements of copper and stone were deposited on the altar. They had been subjected to a strong heat. Among the implements were arrow-points of quartz in fragments, some fifty or one hundred of them in number, two copper gravures or chisels, twenty or more tubes of copper, many fragments of pottery, a couple of carved pipes, one of them a bird resembling the toucan. There were fragments of obsidian and crystals of garnet also on this altar.

Fig. 5.—Paved Altar.

Another mound contained an altar 8 feet 2 inches in length, and about 4 feet in width, the depression 6 inches. In the altar were about two hundred pipes, carved in stone, many pearl and shell beads, disks of copper, ornaments of copper, covered with silver. The pipes were much broken up. The heat had been sufficiently strong to melt the copper. The bowls of the pipes were carved in the shapes of animals, birds, reptiles, etc., all of them executed with strict fidelity to nature. The otter is shown in the characteristic attitude, holding a fish in his mouth; the heron also hold a fish; the hawk grasps a small bird in its talons, which it tears with its beak; the panther, the bear, the wolf, the beaver, the squirrel, the raccoon, the hawk, heron, crow, swallow, buzzard, paraquet, toucan, turtle, frog, toad, and rattlesnake are recognized at the first glance. The most interesting and valuable in the list are a number of sculptured human heads, representing the physical features of the ancient people by whom they were made. Copper disks, tubes, pearl, shell and silver beads were also found in this mound. The silver was reduced to extreme thinness, not exceeding in thickness ordinary foolscap paper; it was plated, or, rather, wrapped around copper beads. There were a number of large beads of shell enveloped

with sheets of copper, with thin sheets of silver over the copper. Besides there were several star-shaped ornaments composed of shell, covered by an envelope of sheet copper, over which silver slips were carefully folded. A small hole passed through the center of these ornaments, by which they were fastened, probably to the clothing of the wearer. There was but a small amount of silver; the whole amount would not exceed an ounce in weight.

Another of these mounds contained three sand strata and an altar of unusual form. At a depth of 4½ feet the deposit was reached, which consisted of a pavement of water-worn stone, taken from the river. See Fig. 5. The pavement was 6 feet long and 4 broad. On the pavement was a skeleton. A fire had been built over it. There were no relics with the skeleton, though around the head were disposed a number of large fragments of cyanite, a material from which the instruments of the modern Indians were frequently made. After the burial rites had been performed, the altar had been filled and another fire had been

Fig. 6.—Altar Made of Flint Disks.

kindled, leaving the earth of a reddish color. The whole had then been covered up by the mound. There was an intruded burial in the top of this mound. Another mound, 80 feet in diameter, 6 feet high, contained an altar composed of two layers of disks, chipped out of horn stone, some nearly round, some in the form of spear heads, measuring 6 inches by 4. Six hundred disks were thrown out. These disks were deposited here perhaps as an offering; they must have been fashioned with toil and brought from a distance. They were carefully laid in two tiers, one layer upon another, a little inclining or overlapping one another. See Fig. 6. This leads to the conclusion that human sacrifices were practiced by the Mound-builders of this region.

Another mound which belongs to this group near Chillicothe is the one represented in the cut Fig. 7. This mound was situated in the center of a large enclosure, but was solitary. It contained two altars, both of them cased or paved with pebbles. The paving was made from pebbles about the size of a hen's egg. These were laid with the utmost precision, rivalling the pavers' finest work. Upon the altar was found burned matter

and human bones, and encircling the bones were ten wrought copper rings, probably the bracelets of the arms which had been burned. See Fig. 2.

(2.) We now turn to the second locality. This was at Clarke's Fort, situated some twenty miles north from Chillicothe. The fort itself contained a hundred and eleven acres. Within the fort was the small enclosure in which were the altar mounds, showing that it was the sacred place for the clan which (see Fig. 18) dwelt here. This so-called sacred enclosure was semi-circular in shape, 2000 feet in circumference, and in it were seven mounds, three of which were joined together, forming a continuous elevation 30 high by 500 feet long, the other four being isolated mounds (see Fig. 1). Here the ground was elevated above the surface and overlooked the area of the larger fort in which they were enclosed. The mounds were all places of sacrifice. One mound here contained two altars, or rather an altar and near it a bed of charcoal. On the altar, which meas-

Fig. 7.—Double Altar.

ured not more than 2 feet across, were some remarkable relics: Several instruments of obsidian, broken, but evidently designed for knives; several scrolls from mica, perforated, designed as ornaments to a robe; traces of cloth with thread, doubled and twisted, made from some vegetable fibre; several bone needles; a quantity of pearl beads; some fragments of copper. Another mound in the same enclosure contained an altar of large flat stones, faced on the top and sides with slabs which were closely fitted together. The altar bore marks of fire. The deposits on it had been removed by modern Indians, who had opened the mound and buried one of their dead on the slope of it. Another mound contained an altar with a level area 10 or 15 feet broad, which was covered over with earth, a foot deep, followed by a stratum of small stones. Hundreds of relics were taken from this mound. Several coiled serpents, carefully enveloped in sheet mica and copper; carved fragments of ivory; a large number of fossil teeth.

(3.) Another locality where relics have been found upon altars is the one which has been described by Prof. Putnam under the name of the Turner Group, in Anderson township on the Little Miami river. The group embraces thirteen mounds and two earth circles, is enclosed by two circular embankments. Several of the mounds contain altars. One altar contained two bushels

of ornaments, stone, copper, mica, shells, and thousands of pearls, nearly all of them perforated. The copper ornaments were covered with native silver, pounded into thin sheets. One copper pendant was covered with a thin sheet of gold, the first specimen of native gold that has been found in a mound. Here were thirty of the singular spool-shaped ear-rings, ornaments of copper resembling the heads of animals, a few grotesque human profiles; scrolls, scalloped circles, oval pendants, several finely chipped points of obsidian, three large sheets of mica. The most important of all were several masses of meteoric iron, and an ear ornament of copper covered with a thin plating of the iron. Three of the masses of iron had been more or less hammered. They proved to contain nickle, and were unquestionably meteoric. Another altar contained several terra cotta figures, all of them more or less burned. Many of them appear to have been purposely broken. These show the peculiar method of wearing the hair, singular head dress, and button-like ear ornaments; two remarkable dishes carved from stone, in the form of animals; a serpent cut out of mica; several hundred small pebbles; 300 astragali of deer; a finely made bracelet of copper; several ornaments of copper. Another mound contained a tumulus surrounded by a stone wall, in which were several skeletons. With each of three of the skeletons were found a pair of spool-shaped ear ornaments, two large sea shells and a copper celt. This mound seemed to be full of a series of pits, with tubes and flues, showing the action of fire. The Marriott mound, adjoining the Turner group, contained a large quantity of relics. The mound was 2 feet high and 60 feet in diameter, with a basin of burnt clay in the center. Within the mound were many bone implements, such as needles and awls, chisels, objects of stone, 400 flake knives, also 10 handles of knives made of antler, in a pile, under the bones; with the group of handles, chipped points and flakes, a copper plate cut from a sheet of rolled copper, 9 inches across and in length, 5⅛ in width; with the plates 6 canine teeth of bears, with pearls inlaid; 6 spool-shaped ear ornaments, four near the head and two in the hands, also a large quantity of pearl beads, 250 or 300 in number. The ear ornaments have vegetable fibre wound around the central column. These may have been placed with the dead as tributes. The number of these ornaments found on the altars of the great mound, some covered with native iron, others with native silver, shows that they were regarded as valued offerings in keeping with the thousands of pearls and other ornaments thrown upon the altar fires during the ceremonies which there took place.

These altars in Anderson township, as well as those on the north fork of Paint Creek and in the Scioto valley, were all in enclosures, surrounded by a circular wall, but the most of the relics seem to have been placed on the altars and offered, fire

having been applied, and the costly relics burned and destroyed by the heat. What was the object of making the altars? Was it to appease the divinity and to ward off some great calamity, or was it to present these costly gifts to the spirits of the deceased, that they might have pipes and ornaments in the land of the shades, the shadowy shapes of the pipes going up in the flames to be taken by the spirits which were hovering near? The answer to these questions cannot be positively given. There seems to have been mingled sun-worship and fire-worship in all of these localities, and there are some evidences to prove that human bodies were cremated, and that the offerings of costly relics were to the spirits of the dead. Many of the relics were associated with human bones, giving the idea that in some cases at least bodies were burned at the same time that the relics were deposited. There is a distinction between the altars on which offerings were made, and the basins or fire beds on which bodies were burned. The last case which was described, the one in Anderson township, was a fire bed. The altar was in the midst of the bodies that were buried. It will be noticed that there were no offerings as such in this burial place, unless we consider the pottery and flint flakes and the bundles of knife handles, as offerings. Otherwise it was a burial place in which cremation had been practiced.*

II. We now turn to the study of the relics. It will be noticed that the relics taken from the altar mounds are of the same general character. They abound with fine sculpturing and are many of them imitative of animated nature. There may be a slight difference between the specimens taken from the Turner group and those from the Chillicothe mounds. We learn from them that the people who erected the altars were well advanced in art. We may say, in fact, they were more advanced than any other known race of Mound-builders. No specimens have been discovered which can compare with these. Great contrasts may be seen between these relics and those taken from the ash pits, and we might also say include the relics taken from the stratified mounds. We call attention to these contrasts as we proceed.

(1.) Let us first consider the relics found in the altar mounds. These were of all kinds of material—copper, lead, mica, gold, silver, meteoric iron, pearl beads, shell ornaments, carved stone, highly wrought pottery, and even woven cloth. We may say that all these seem to have been the work of one people, for they all have the same general characteristics. There are, to be sure, certain variations in the different collections, those from the first locality having more human-shaped carvings, those from the second abounding more with the figures of serpents, and those from the third exhibiting more of the spool-shaped ornaments

*See 18th Annual Report, Peabody Museum, pages 450-466.

and more metal covered specimens. Still, so far as the art was concerned, we place them all in the same grade. It is unnecessary to say that they are immeasurably beyond anything which the North American Indians are known to produce. They combine taste in arrangement with skill in workmanship, and are faithful copies of nature. They display animals in characteristic attitudes and show great familiarity with their habits. The human effigies are valuable as ethnological specimens, giving the features characteristic of the tribes then extant. The ornaments are also suggestive as to the dress worn in prehistoric times.

We now proceed with the specific cases, and take up the specimens from the enclosure called Mound City. A description of the relics was given by Squier and Davis at considerable length.

Fig. 8.—Heron.

From this we learn that the carved pipes were especially beautiful and true to life. Among the most spirited and delicately executed specimens are those representing the birds. They are more numerous than those of animals; they comprise between thirty and forty different kinds, and not far from a hundred specimens. There are several varieties of the same species. Among the owls we find the great owl, horned owl, and little owl; several varieties of the rapacious birds, the heron (see Fig. 8) and hawk being notable specimens, the small body, long wings, long, thin neck, sharp bill, tufted head are striking features. The articulations of the legs and the minutest features are shown. These are carved from red speckled porphyry. As a work of art it is incomparably superior to the remains of any existihg tribes of Indians. The hawk is in the attitude of tearing a small bird to pieces. The sculpture is spirited and life-like, minute and delicate. The finer feathers are well represented. The eyes of this bird are composed of small pearls, inserted about half their depth in the stone. The swallow has an attitude which is char-

acteristic; the body is thrown forward, wings about to be extended, as if the bird was just ready to dash off on its swift flight. Another bird is wrought with admirable skill.

The cherry bird is represented by three specimens; nothing can exceed the life-like expression of these. Several bird-pipes seem to be unfinished. They lack the markings for the feathers and for the bills. The base and various parts of the figure exhibit fine striæ, resulting from rubbing or grinding. The general outline was secured by cutting with sharp instruments, the marks of which are plainly to be seen. "The specimens indicate that the work was done rapidly by an experienced hand; the freedom of the strokes could only result from long practice. The lines indicating the feathers, grooves of the beak and other more delicate features, are cut or graved at a single stroke; some pointed tool seems to have been used, as the marks are visible where it occasionally slipped. We may infer that the manufacture of pipes was a distinct trade among the Mound-builders."

Fig. 9.—Spotted Toad.

Sculptures of the toad are very truthful. See Fig. 9. The knotted, corrugated skin, folds and lines are clearly cut with some sort of a graver. The marks of the implement clipping out portions a fourth of an inch in length are distinct. The general surface appears to be covered with striæ, the result of rubbing. Some of the toads are also unfinished.

Two heads representing eagles are also very superior in point of finish, spirit and truthfulness. The peculiar defiant expression of the king of birds is admirably preserved. Expression in sculpture was evidently aimed at by the artist, and very successfully represented. The lugubrious expression of the mouths of the toads is said to be very amusing. The savage expression of the beasts of prey is also quite marked. The wild cat, cougar and otter are represented. These are exquisitely carved from a red granulated porphyry; strong jaws, short neck, whiskers, the shape of the hair around the head are minutely sculptured. The ears are also very natural. A very spirited representation of the

head of the elk is given; another of the wolf, several of the serpent; the beaver, the squirrel, the toucan and the Manitou are also represented. The human face is very finely represented. Four specimens were taken from one mound, mound No. 8 in Mound City. Each one of these specimens was different. It would seem as if the effort was to represent different tribal features in these faces. The hair, head dress, tatooing and painting are represented. The ears were perforated, and it is probable that they were ornamented with rings of copper. Fidelity to nature in the sculptures of human heads is such that they display not only the characteristic features of the ancient races, but their method of wearing the hair, style of the head dress, mode of adjusting their ornaments. A fillet of real pearls was displayed upon the head of one of these pipes, the drapery of the head dress having had a border of these precious stones. The use of pearls and precious stones for the eyes of the birds and for the head dresses of the human faces is noticeable, as it shows some skill in the lapidary's art.

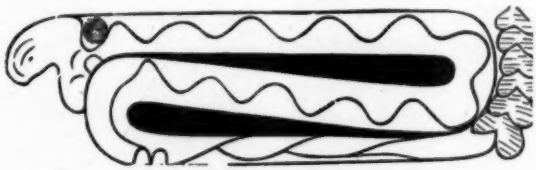


Fig. 10.—Tufted Serpent.

(2.) The relics from Clarke's Fort are next to be described. The coiled serpent is the most remarkable, as it seems to be the embodiment of a myth, and suggests a familiar symbol, which is common at the East. The suggestion that the various relics found upon the altar were the personal effects of deceased chiefs is controverted by the fact that the deposits are generally homogenous. Upon one altar pipes only; upon another a simple mass of galena; another has a quantity of pottery; another a collection of spear heads; another a layer of mica. Mica is common in the deposits of the mounds of Ohio. Beside the deposit in the shape of a crescent at Mound City and the scrolls of mica in the mound on the North Fork, the Grave Creek mound contained a hundred and fifty bits of mica, perforated as if they were ornaments on the article of dress. A large piece of mica, three feet across, was found in a mound near Circleville. Perforated tablets were also frequently found in the altar mounds. Whether these tablets were worn as badges or ornaments, or whether they were carried as implements for shaping the bow string, is uncertain. They are very common in the mounds of Ohio. Bracelets of copper, smoothly hammered and highly polished, are also common. The serpents from this enclos-

ure are most remarkable, as they were very skilllfuly wrought. Some of them seem to have been symbolic in shape. "It does not appear that these relics were designed for ornaments; on the contrary, the circumstances under which they were discovered render it likely that they had a superstitious origin." One tablet was found closely enveloped in sheets of copper. See Fig. 10. It was painted in different colors, but several of these were originally deposited in the mound.

III. We now turn to the ash pits. We have said that these belonged to a different horizon from the altar mounds and were probably the tokens of a different race. These points are to be considered as we proceed, and in order to bring them out the more clearly we shall speak first of the location of the ash pits; next consider the difference between these and the altars; third, of the character of the deposits contained in the pits; fourth, of the grade of art which was represented by the relics contained in them, and fifth, of the probable age of and race to which they should be ascribed.

(1.) Let us ask about the location. On this we have the testimony of several gentlemen who have visited the spot, including the writer among the number. The cemetery in which these ash pits were discovered is distant about one and a half miles southeast from Madisonville, and occupies the western extremity of an elevated plateau which overlooks the Little Miami river, and is about one hundred feet above the water line. Here is a well-wooded bluff which faces the river for about half a mile, but which is cut off from the background by a small stream called Whisky run. The locality has been a pottery field, as much pottery has been found here. There are no mounds in the cemetery, but there are a number on the edge of the bluff adjoining, and among them one or two earth circles with the ditch inside of the circle. It is also said there were about forty such earth-works in the region, being scattered about the townships of Columbia, Anderson and Spencer. Whether these are with the cemetery is a serious question. It will be remembered that in other localities mounds and earth-works are associated; but this is the only one in which a cemetery seems to figure as among the tokens. This would seem to indicate that the cemetery was in reality an exception and that it belonged to another period. It is said, to be sure, that the forest trees growing in the cemetery were many of them very large, measuring from ten to fifteen feet in circumference, and that this would prove the cemetery to have been of the pre-Columbian age. We grant it; but the same time maintain that it was comparatively modern.

(2.) A comparison between the altars and ash pits. It appears the burials were exceedingly rude, the bodies having been merely deposited in the ground without any covering—not even a stone coffin or a covering of bark, and much less a fire bed or altar

such as we have described. The only thing which at all resembled an altar was the pits into which the ashes and bones and debris seem to have been poured; but there were no traces of religious offerings or any such thing. It is worthy of note, however, that the bodies were almost without exception accompanied by fine vases, and sometimes by pipes and other choice relics. The bodies were for the most part placed in an horizontal shape, but they were also arranged in tiers one above the other, as if the cemetery had been long in use. The ash pits are supposed to have been dug before the bodies were deposited, and yet the pits and the graves may have been cotemporaneous, the one being the depository of the sacred possessions and the other of the bodies of the deceased.

(3.) As to the character of the ash pits: Perhaps this will be understood from a review of the explorations. This was begun under the Literary and Scientific Society of Madisonville, and the report was prepared by Chas. P. Low, though the explorations were conducted by Dr. C. L. Metz, who afterwards transferred the results of his labors to the Peabody Museum. When the exploration was begun the earth-works and mounds were the chief objects of interest, but during the progress of the work one of the laborers who was digging holes in the forest, came upon an ancient cemetery from which six hundred skeletons, accompanied by evidences of handiwork in the shape of flint, stone implements, pottery ware, charred matting and corn, tools and ornaments of bone, shell and copper, all indicating an industrious people who lived in large communities, and obtained their support by cultivating the soil, as well as by fishing and hunting. The cemetery is situated on a plateau overlooking the Little Miami river, eighty to one hundred feet above the river line. It is said to have contained about thirteen acres, and although the majority of the graves were found on an area of about four acres, Dr. Metz began a trench on the south edge of the plateau, running it north and south. About two feet below the surface he found an inverted vessel, resting on a skull, and soon afterward found others, making four vessels and four crania. The next day in a space 4½ feet square, enlarging this excavation, other vessels and skulls were found. He finally came to a circular pit, 3½ feet in diameter, and 4½ feet deep, which contained fragments of twenty-two skeletons. The work was continued; graves were found, the skeletons being in a horizontal position; and ash pits with layers of ashes in the midst of the graves. The skeletons were placed in all directions, some of them at right angles with others; some were parallel, but the majority were recumbent. The ash pits contained leaf moulds, charred wood, ashes and animal remains, fragments of pottery, two of them contained matting, shelled corn and ear corn, with a layer of boulders six inches deep at the very bottom. In one pit a

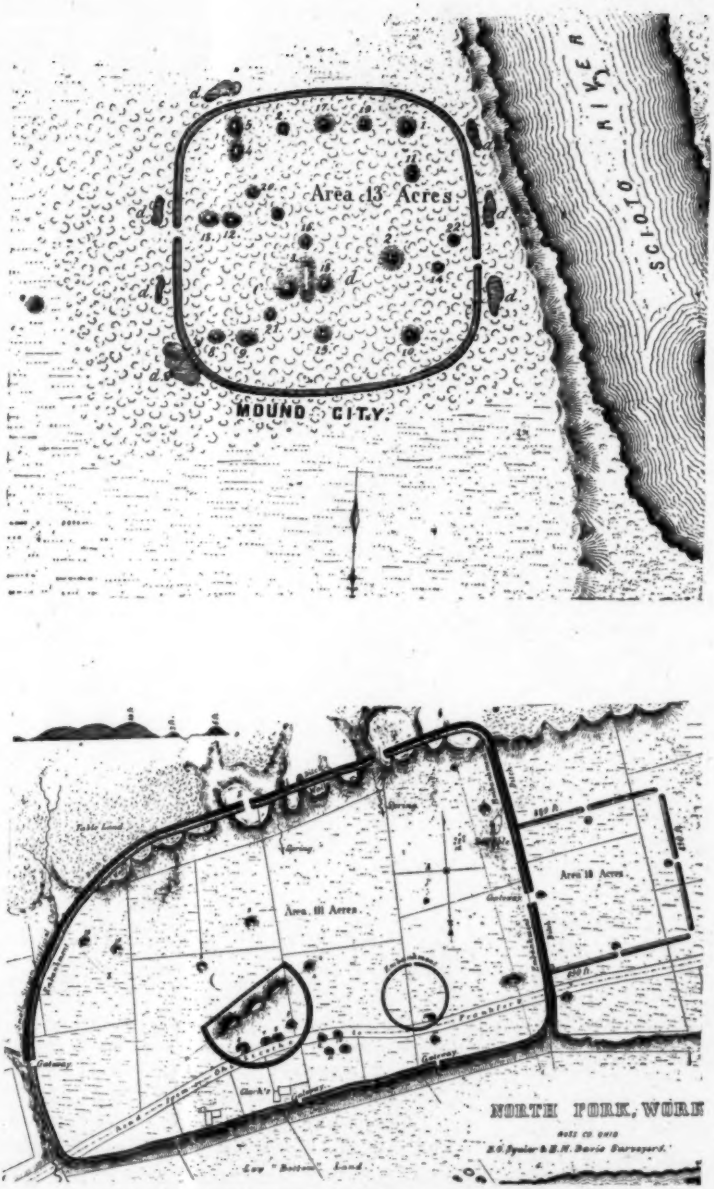
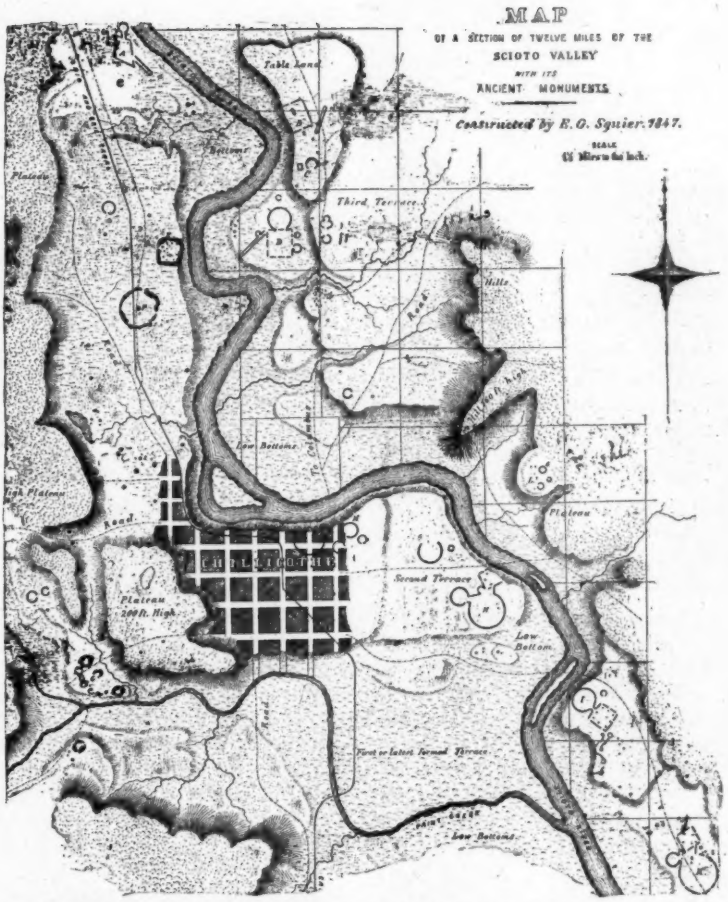


FIG. 18.—LOCATION OF THE ALTAR MOUNDS.



The light lines represent the sacred or village enclosures; the dark lines show Mound City and the adjoining circle; other lines show lodge and dance circles; the dots show the lookout and burial mounds.

FIG. 19—MAP OF THE WORKS IN THE SCIOTO VALLEY.

body was found doubled up, placed at the very bottom of the pit. In another pit there were two pieces of copper found on the bottom of the pit, and carbonized corn stalks and leaves. Other pits contained layers of white sand and white ashes, and with the ashes a great number of implements and relics. Some of the pits contained depressions at a depth of six feet or more, filled with white ashes and relics. These seem to have been pockets. More than one hundred pieces of copper were discovered in these pits, and many interesting relics.

About 1000 pits were discovered in the cemetery. It is supposed that they were made before the 600 bodies were buried, as

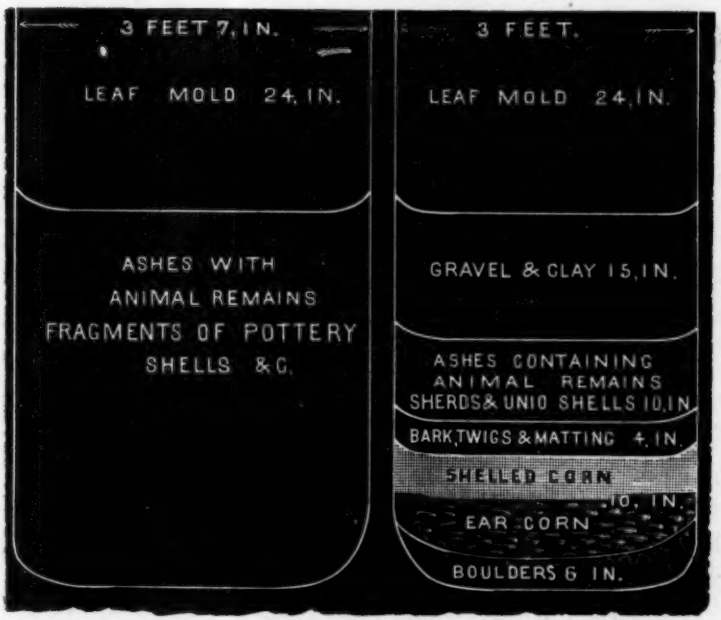


Fig. 11.—Ash Pits.

a large number of the skeletons were found over the pits; still there are some evidences that the cemetery was used at a time preceding the digging of some of the pits, as in a few instances skeletons were disturbed when the pit was first dug, the bones having been taken up and placed at one side. Most of the pits are said to have been filled with ashes in more or less defined layers. Throughout the whole mass of ashes and sand, from the top of the pit to the bottom, were bones of fishes, reptiles, birds and mammals, those of the larger mammals, such as the elk, deer and bear, being generally broken. With the bones were shells of various kinds. Many of the valves had a large circular piece cut out near the center. The pottery obtained from

the pits was generally broken. A large number of implements made of bones of deer and elk were found in the pits. These bones seem to have been used as scrapers of some kind, as they were worn through in the center, and had sharp edges, bevelled on the inside. Bone implements in the shape of awls, bone beads, small whistles or bird calls, made from the hollow bones of birds, flat pieces with tally notches on them, a few bone fish hooks, and two or three harpoon points, were found.

The ash pits represented in the cut (See Fig. 11) may be regarded as typical of the whole series. These pits were partially filled with leaf mould, giving the impression that the pits had either been left open or that the contents below had decayed and let the upper part sink below the surface. The layer of gravel above the animal remains in one pit and of ashes in the other would indicate the same thing, for it is probable that these layers were uppermost and that originally they were at the mouth of the pits near the surface. The animal remains and bones were just such as would naturally accumulate after a great feast or after a prolonged encampment. They were, however, such animals as only wild hunters would be likely to feed upon—deer, elk, raccoon, opossums, woodchucks, wild turkeys, etc. The fragments of pottery indicate that the people used pottery vessels for cooking purposes. Our impression is that these vessels were accidentally broken and the fragments gathered with the debris of the camp and thrown into the pits. The bark, twigs and matting in the third layer also give us the same impression. The discovery of a large amount of carbonized corn, several bushels of it in one pit, covered with bark, twigs and matting, which was also burned, and above the matting the usual mass of ashes containing animal bones, shells, and other things, is to be noticed, on account of its bearing on the age of the pits. The modern Indians were accustomed to make caches for their corn. The covering for these caches was generally of bark and matting. We imagine that the people who deposited these relics were a people who lived in wigwams covered with bark and mats, very similar to those of the Algonkins. The corn conveys the same impression. It must have been at a comparatively recent date

Fig. 12.—Pottery Vessel with Salamander.

that this corn was deposited. No such deposits have been found among the altar mounds, though the people who built these mounds were even more given to agriculture than those of the ash pits. The boulders at the bottom of the pit are also significant. A common way of cooking among savages is to heat stones and place them in the vessel containing water until the water boiled. Here we have boulders bearing signs of fire, as if they had been used for the same purpose.

According to all accounts, a kitchen midden, several feet in thickness and of considerable extent, existed at the head of a small ravine. It contained the same character of material as that found in the pits. In it were two or three areas about 50 feet in diameter, in which neither ash pits nor skeletons were dis-

Fig. 13.—Pottery Vessel with Ears.

covered. The impression made by these areas is that they may have been council houses, and that after long residence the kitchen middens became places for the deposit of the refuse of the camps, and the pits the deposits of the sacred feasts and of religious offerings. This may have been at a time when there were no graves on the spot, the bodies having been placed in the ground subsequent to the time of the digging and filling of the pits, and probably by a different tribe. If a distinction were to be recognized between the graves and the pits and the kitchen middens, we should say that the graves were much more modern. Still they may have belonged all to one people. The ground which yielded the relics was only about four or five acres in extent. This was thoroughly explored. The burials were scarcely any of them lower down than two feet. The burials embraced all ages and classes, and remind us of the custom among the Indians of burying the personal possessions of the

individual with the body; pottery, beads and personal ornaments with the bodies of children; pipes, spear heads, tomahawks and other weapons with the men, and pottery vessels and ornaments with the bodies of the women.

Such is the general description of the cemetery and the ash pits. Our readers will realize from it that there was a great contrast between these and the altar mounds, and will conclude with us that two very different periods were represented, the one being the period of the Mound-builders proper and the other the period of the wild or red Indian. We think that the same impression will be gained from a study of the relics taken from the ash pits.

Fig. 14.—Limestone Pipe.

IV. We now turn to the description of the relics from the graves and ash pits. It will be noticed that these relics are much ruder than those taken from the altar mounds, though they have the same general character, being mainly in the shape of pipes, pottery and various copper relics.

(1.) We begin with the pottery, especially that taken from the graves in the cemetery. This pottery seems to have been well finished and contains many symmetrical-shaped vessels. There is, however, a lack of ornamentation, and so we should place it in a lower grade from that which prevailed in the altars. The abundance of these vessels, especially of whole vessels, is an-

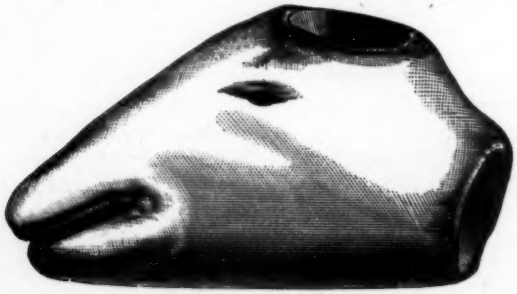


Fig. 15.—Sandstone Pipe.

other very remarkable circumstance. It will be remembered that the pottery of the altar mounds was all broken, very few of the vessels being found complete. Here, however, the broken vessels seem to have been the exception. The pottery is all of one general type. It abounds with vessels which are made with ears on the outside, (see Fig. 13) the mouth of the vessel being drawn in and a wide flange being thrown out, the handle

being merely a band or strip passing from the flange to the bowl. The vessels were generally placed near the head of the skeleton; sometimes a stone pipe would be found in the hand. One vessel had a salamander moulded on the outside. See Fig. 12. This was found between two skulls; though the occiput of the upper skeleton, having been placed upon the vessel, had crushed it, Another vessel with a salamander was found near the feet of a skeleton. About 80 copper beads, 2 inches in length, rolled and twisted into a spiral spring, were found strung along the spinal column of another skeleton. These were in graves. In a pit were found two rolls of copper, five bone beads, a stone skin-dresser, a sandstone pipe, an ungrooved axe, and several bone relics. Two pipes and a large number of stone and bone relics were taken from another pit. A semi-circular piece of copper, through which a large root had grown, was taken from another.

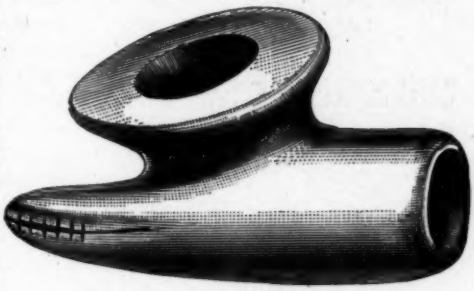


Fig. 16.—Catlinite Pipe.

(2.) We next take up the pipes. There were many of these found among the graves and in the ash pits, all wrought from stone, either sandstone, limestone or catlinite. None of the pipes were made from pottery. Some of them are wrought into shape so as to be imitative of some animal, either a wolf or panther, or a bird. Some of them are fashioned into round nodules, but have figures of birds inscribed upon the outside in a rude way. Some are mere tubes, with a flat bowl raised at one end above the tube. All were designed to be used with a stem, the hole for the insertion of the stem showing that some large-sized wooden mouth-piece had been used, probably just such a mouth-piece as was common among the later Indians. Not a single

Fig. 17.—Catlinite Pipe.

pipe of the genuine Mound-builders' pattern was found, either in the graves or the ash pits.

(3.) Association of skeletons with pipes and pottery. The majority of these were in the graves, above the pits and near the surface, the vessels being near the head of the buried skeleton, the pipes near the vessels. This is seen by the following descriptions: In one case four crania and four vessels and several flint relics were found crowded into a space of less than four feet; in another place were seven skeletons, several vessels, and the pipe represented in Fig. 14; in another place seven crania were uncovered, and with them three broken vessels and the pipe represented in Fig. 15; in still another there were five skeletons and the pipe of red catlinite in the shape of a tube and flat bowl (see Fig. 16); another find consisted of shells, ashes, pottery and a stone

Fig. 10.—Limestone Pipe.

Fig. 11.—Limestone Pipe.

pipe. The skeletons lying horizontally generally had pottery vessels near the head. In one case a pottery vessel was found near the head and a jasper spear-head in the hand of a skeleton. The pipe represented in Fig. 17 was found with a pottery vessel near the head of a skeleton. Two skeletons lay across the feet, but no relics were with them. A limestone pipe (see Fig. 21) was found near the head of a large skeleton, and on the other side of the head eight small deer-horn tips, several arrow-points and a bone cylinder. One day seven skeletons were found, two of them children, and with one of the children the two-story pottery vessel, and on another day seven children. With these children was a pottery vessel, and in the vessel a piece of shell inscribed with dots and cut into notches. Soon after this the ash pits which contained shelled corn and ear corn were opened. These ash pits contained the bones of animals such as had been used for food—deer, elk, raccoon, opossum, mink, wood-chuck, beaver and turkey. In another ash pit was a pipe representing

a bear on its haunches. These finds were all remarkable for one thing—they were full of evidences of a peaceable burial, and in fact of a peaceable and industrial life. Very few weapons of war were found—pipes, domestic tools, food and the vessels for cooking the same—no coats-of-mail, no military badges, no crushed or wounded skulls, but many skeletons of children, women and old men.

Fig. 21.—Inscribed Stone.

(4.) There are several pipes which remain to be described, These have the same shape as those already given, but they differ in having figures sketched on the surface. See Figs. 14, 17, 20, and compare with 22.* These pipes are worthy of study, as they represent the art of the people. They seem to have been scattered indiscriminately among the graves and ash pits, and were the most curious of all the relics. One such pipe was found unaccompanied by a skeleton or by any vessel. This is

*We are indebted to the Society of Natural History of Cincinnati for the use of the cuts, and are happy to call attention to the collection of relics in the museum of that Society. A full report of the exploration of the Madisonville cemetery may be found in the third volume of the journal published by the Society

a rare case, pipes generally being found near recumbent skeletons and frequently associated with pottery vessels. A finely finished pipe, made of dark red catlinite, was found with five skeletons in a horizontal position. This pipe is a rude imitation of an animal head. Another pipe was taken from an ash pit. It had a peculiar form and was made of limestone. Another interesting pipe was found at the head of a skeleton which was horizontal, fifteen inches below the surface. This pipe is made of limestone, well finished, and carved to represent the head of the panther or wild cat. A copper relic in the shape of a two-barred cross was found near the neck of the same skeleton.

(4.) Shell ornaments and copper rings. One peculiarity of the cemetery "finds" is that, while the articles are very rude, they are made of different materials—copper, shell, bone, horn, pot-

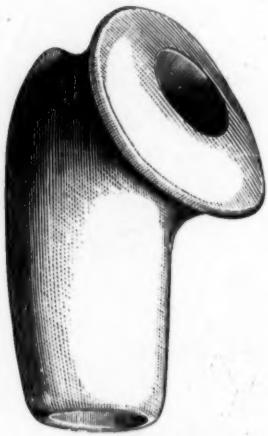


Fig. 23.—Limestone Pipe.

Fig. 27.—Limestone Pipe.

tery, limestone, sandstone, catlinite, shell, but no articles of gold or silver; no lead or mica, or obsidian; no quartz or precious stones, or pearls. There were beads and pendants, but these were made from shell and bone, never from pearl. The following relics were found with the skeleton of a female: Two perforated shell disks, about the size of a silver dollar, and a pendant also made of shell, near the neck. A stone flesher was found with this skeleton. A war arrow-point was also found in one of the dorsal vertebræ of a skeleton. This is a rare case, for very few of the skeletons show any signs of wounds received in battle. Copper rings, finger rings, have been mentioned by Prof. Putnam as a rare exception, only one case of the kind being mentioned. The rings were still on the finger bones. Agricultural tools made from antlers are common in the ash pits. They are "digging" implements. These digging implements must not be confounded with the flint hoes or spades common among

the agricultural races, for they are mere picks made from antlers and are very rude. So, too, the copper rings must not be confounded with the "copper spools," for no spools have been found in the cemetery.

(5.) An inscribed stone was found among the ash pits. See Fig. 22. It was a piece of limestone covered with very rude markings, some of them resembling the track of a turkey, others the heads of serpents, others the teeth of some animal, all very rude and apparently without significance, no symbolism being apparent.

V. We now come to another point, the comparison of the relics from the altar mounds with those from the ash pits. We have already shown that they were much superior as works of art and indicate a much higher grade of culture. This is in accordance with the old theory, first advanced by Messrs. Squier and Davis, that the Mound-builders were superior to the Indians, a theory which we see no reason for rejecting, though we should carefully guard it from perversion. This theory does not necessarily imply that the Mound-builders were a civilized people, nor does it even hold that they belonged to a different stock from the modern Indians. The difference in the grade of culture is the only point which we care to make. The differences between the altar pipes and those from the ash pits are worthy of especial attention. These differences are the same as may be recognized between Mound-builders' pipes and those of the later Indians. They are as follows: 1st, the altar pipes were all in one piece, and would be called simple relics; the pipes from the ash pits, as well as Indian pipes, are generally compound relics—that is, they consist of two pieces, a bowl and a stem. 2d, the altar pipes were generally of the "monitor" shape; the base is curved, the mouth-piece flat, bowl round or cylindrical, and the whole carved into some well-wrought figure. The pipes from the ash pits have cylinder shapes, among them the following: *a*, the tube with the bowl at the end on horizontal line; *b*, the cylinder with the hole for the stem in the side of the bowl; *c*, the round nodule; *d*, the irregular effigy pipe. 3d, the altar pipes were symbolic, either with crescents and circles embodied in them or with animal effigies, which may have been totems. The pipes from the ash pits contain no symbols. If the carved heads were totems, they were very rude, and can hardly be called symbolic pipes. The flat circle which rests upon the tube of certain pipes might be called symbolic, but on these pipes this flat bowl is at various angles and seems to have lost its significance as a symbol altogether. 4th, the altar pipes never have straight sides or angular corners, but every part is well rounded and finely finished. The pipes from the ash pits,

Fig. 24.—Copper Bell.

like many Indian pipes, have sides which look as if they had been sawed out, but are otherwise very rude. 5th, the two classes of pipes are in great contrast in regard to workmanship. The altar pipes have whole figures finished in the round, the birds standing out in full shape, the beasts generally with all parts complete, though sometimes the head and shoulders only are represented. In the ash pits no such pipes were discovered. Here the animal figures are merely heads, and they are very rudely represented—in one a simple gash in the side of the tube to imitate the mouth, in another a couple of projections to represent the ears, but no whole figures. Great contrasts are noticeable in the finish of the two classes of relics. In the first are lines which imitate feathers, wings and feet, and even the roundness of the feet. In the latter are no such lines, but everything is rude and wrought in the easiest way possible.

Fig. 25.—Pottery Vase.

We give a series of cuts to show the different shapes of the pipes. See Figs. 8, 9, 15, 16. It will be noticed that the pipes from the ash pits are nearly all cylinders—some of them horizontal, others perpendicular—but that the pipes from altar mounds rarely have the cylinder shape. This distinction does not obtain so thoroughly elsewhere as here, and yet it would seem as if the pipes of the Mound-builders and of the Indians could be distinguished in this way.

VI. We now call attention to another class of relics, namely the class which has the appearance of being imitations of modern historic objects. This is an important point. We have all along maintained that the ash pits were among the latest or most recent of the prehistoric tokens. We now are to ask the question whether some of them were not actually subsequent to the historic date. Let us first state that there was after the time of the discovery by Columbus at least two hundred years before the interior was visited to any extent by white men, and that another hundred years passed before the interior began to be settled. During this time many missionaries labored among the native tribes. As to the tribes which occupied Southern Ohio, it is supposed that the Eries were the first, the Shawnees the

second, the Delawares the third, and the Wyandottes the fourth, all of them, however, wild Indians. Now which of these tribes made this particular spot their home we may not determine, but our opinion is that perhaps both the Shawnees and Delawares may be credited with the relics of which we are about to speak. We take up the different relics as they were discovered and place these modern-looking specimens by themselves, and ask the question, How came the semblances, except that there was a contact with the white man somewhere? First, let us take up the sleigh-bell. See Fig. 24. This was found in the grave of a little child. It was made of a single piece of copper folded together in the shape of a little hawk-bell, and furnished with a rude handle. There was inside of it a bit of copper about as big as a pea. The bell had a musical tinkle to it. It was evidently a toy, and was buried with the child as one of its possessions. Next to this is the vase represented in Fig. 25. This vase is very rude, but it is in imitation of a modern vase, or possibly of the chalice. Its upper part is, to be sure, in the shape of a common cooking vessel, and retains the ear and rim, but the base is that of a modern goblet or chalice. It suggests a contact with the white man. The third specimen differs from the others. It is in the shape of a heavy, rude, coarse comb. It was made from elk-horn. It was found in an ash pit. It shows the domestic habits of the people, and reminds us of their wild life. The fourth relic is one which again reminds us of the missionary who is supposed to have been the first white man who gave a modern pattern to an Indian relic. This relic is in the shape of a double-barred cross. It is of copper, and has an appearance as if it had been used as a crucifix. It may have belonged to some devout female, who was too poor to own a silver crucifix and therefore manufactured one from copper. This cross was found in a grave in contact with a body and associated with the panther pipe which has been mentioned above. The resemblance to the modern catechumen's cross is the strange thing about it. The next is a pipe with the image of the spread eagle sketched on the outside. See Fig. 26. This pipe was not found in a pit but on the surface, having been rooted up by hogs which were in the lot. It is a sandstone pipe, and is quite rude, but the eagle reminds one of the spread eagle, which is purely modern.

Fig. 26.—Eagle Pipe.

There are relics which have a modern look. One is represented in Fig. 27. It is a limestone pipe picked up on the surface. This pipe has straight sides and beveled angles, and reminds us

of some remarkable relics which purport to come from the State of Michigan, but have been regarded as fraudulent relics. It is possible that some wandering tribe had dropped this specimen here and that the same tribe wrought the Michigan relics. We have spoken of the iron axe found between two graves in this cemetery. This axe must have been made by a white man, and proves that some of the relics at least were deposited after the advent of the whites.

This subject of modern-looking relics may give rise to discussion, for there seems to be a diversity of opinion on it. We here quote from different authors. Prof. Putnam found a relic resembling the cross in Tennessee, but he says of it: "The cross like form might give rise to the question of its derivation. Had any article of European make, such as glass beads or brass buttons, been found, I should consider the form of the ornament the result of contact with the early missionaries. But from the absence of articles denoting such contact, I think it must be placed in the same category as the well-known cross at Palenque." Mr. C. F. Low also says of the relics in the cemetery: "Nothing has ever been found *in situ* which shows any evidence of association with European races." Prof. J. T. Short compares the relics to those of other aborigines, and says: "As regards the races to which the people belonged, whether to the stone grave people, as the crania would indicate, or whether they were the last remnants of the powerful nation who built Fort Ancient and other great works—these and similar inquiries remain unanswered." Still, we would say that the various relics, the copper sleigh-bells, the catlinite pipes, and the two-barred cross, were all found *in situ*, and they seem to indicate a contact with the whites.

It is to be remembered the cemetery was near mounds, that large trees were growing on this ground, and that some of the bodies were found underneath the very roots of these trees, showing that at least some of the burials must have been many years ago, probably before even the time of the discovery. If this is the case, then we have a history contained in the cemetery which covers three or four hundred years, and back of the cemetery another history in the altar mounds, which cover several centuries more, and so in the two classes of remains may find a record for perhaps a thousand years.

Correspondence.

CANADIAN RELICS.

Editor American Antiquarian.

In reply to yours of the 20th of September, I may state that Prof. Boyle, of the Canadian Institute, is having some of my specimens of relics and pottery (fragments) photographed, and I have written to him for some of the most interesting ones to forward to you.*

Enclosed is a water-color sketch of a common form of clay pipe found occasionally here. Some ascribe this form to the Hurons, but we are east of the Huron country, and this type probably belonged to some tribe that the Hurons displaced, probably the Hochelagans, as you term them. There is no doubt that the Hurons displaced some tribe, as evinced by the remains. We find relics that can be ascribed to the Hurons and others which are totally distinct. For example, the pottery markings on the fragments found on village sites resemble very closely the markings described by Dawson in "Fossil Man," pp. 72, 75, 77, 87, 91; also pipes resembling very closely the top figure on page 94 in same volume. This, however, may be a modified Huron form. These pottery and pipe markings resemble more the Hochelagan style, over two hundred miles east, than the Huron style, fifty miles west, on the west side of Lake Simcoe. These markings are common to different sites in this part. A proof of the great age of these village sites is that, to my personal knowledge, no relics showing traces of contact with white men have been found on them, showing that they were occupied by the very earliest Hurons, or a distinct tribe. The evidence strongly favors a distinct tribe, both as to dissimilarity of style and types of ornaments, etc., and of burials. I do not know of any ossuaries, the favorite Huron way of burial, within fifty miles. The burials here consist of long rows of single graves, running in no particular direction, and generally on the slope of a hill or at the bottom, while the ossuaries to the west of Lake Simcoe were placed at the tops of hills. These single graves contain no relics, as far as have been discovered as yet, and are occupied by skeletons of a smaller size, placed in no particular position, except lying on either side.

*The Editor begs leave to state that photographs and engravings for two interesting pipes were forwarded, but by some means were lost. Re-productions of these will, however, be furnished in our next number.

Prof. Boyle and myself opened a number this summer, but the skeletons were so decayed that the skulls fell to pieces on exposure, and we could only save two. So, without undue haste, I think the territory of the Hochelagans may be extended as far as this.

This country lies to the west of Balsam Lake, a large lake seventeen miles east of Lake Simcoe, and being one of a chain of lakes, etc., which was the ancient interior canoe highway between Georgian Bay, Huron County, and Montreal. This lake is not connected with Lake Simcoe except by an ancient trail, traversed by the Jesuits and voyageurs, and also mentioned by Champlain. This trail is now enlarged to a government road.

The second sketch is of a panther pipe, found eighteen years ago at Mud Lake, seventeen miles northwest from here. It is undoubtedly genuine, and is of the same pattern as the bear pipe and monkey pipes in the Candanian Institute. It is well finished, but shows rough usage. As regards detail: It has two stem holes, the less above the greater; the eyes are bored through and the mouth marked by an indentation at each side. There is also a deep indentation on each side of the neck. The ears are marked by two slight but well defined protuberances. The shape of the occipit, and size and squareness of the jaws, denote a regular feline head. The claws are defined, but the hind claws show wear as of being held constantly in the hand during use. The forelegs are not divided from each other, nor are the hind legs, though they are in their natural position, and not bent the wrong way, like the bear pipe. The tail is not represented, unless we take that part of the pipe which encircles the perforation behind the hind legs, which was probably used as a means of suspension to the owner's belt or neck. The mouth of the bowl is at the shoulders, and the two stem holes farther down the back. Material: stealite of a mottled green color. The position of the bowl and the stem hole or holes being the same in the bear pipe, panther pipe, lynx pipe found in Muskoka, all from this district, and the monkey pipe found west of Toronto, show that they all belonged to one people, and were regular types of animal and bird pipe sculpture, which we may call totem pipes, being of a different type of pipe sculpture to that of the Mound-builders, though of equal finish and workmanship and as true to nature, is another proof that the Indians and Mound-builders were different nations, and that their types of art were different*

Sir Wm. Dawson says† the Hochelagans had pipes of steatite or soapstone, but none of elaborate form, in which he must be either mistaken or misinformed, for if these are not elaborate forms, what are? And we cannot ascribe these to the Hurons,

*See American Antiquarian, September, 1890, page 267.
†Ibid., page 266,

because no pipes like them have been found in their ossuaries or on their extensive village sites. I agree with you that the Indians and Mound-builders were different races, as evinced by the differences in their respective remains, but why don't you compare the copper axes, spears and knives of the Alleghans to the copper axes, spears and knives of the Hochelagans, instead of to the stone knives, etc.* We have in this country some very fair specimens of the above, whether made by the Hurons or Hochelagans, or dropped by the Iroquois on their forays, or even by the Alleghans themselves, we cannot generally determine. Some of the copper knives are regarded with suspicion by some, who claim they are of modern form, but if of modern form they must have been made in modern times, which is disproved by the fact that there are no records, either of the Jesuits, voyageurs or others, which show that the Indians north of the lakes worked copper, from the earliest times down. If it be admitted that these knives are of modern form, therefore, being made in modern times, it proves that the Jesuits, the most observant of all classes or creeds, have failed to observe and record that the natives worked in metals. This cannot be admitted. The form in question is a modification of the semi-lunar form as observed in slate knives found in Ontario, and also mentioned by Abbott in "Primitive Industry."

G. E. LAIDLAW.

The Fort, Victoria Road P. O., Ontario.

THE EFFIGY MOUNDS OF BUFFALO LAKE, MARQUETTE COUNTY, WISCONSIN.

Editor American Antiquarian:

The valley of the Fox River—for unknown centuries a favorite residence of Indian tribes—seems to have been equally well known to their predecessors, the Mound-builders, judging from the numerous tumuli and other earth-works which are found scattered along its banks from Green Bay to the Wisconsin portage. Among these evidences of antiquity the most interesting are the effigy mounds, which form an integral part of nearly every group, and are also met with isolated on bluffs and other sites overlooking the waters of the river. Strange to say, these various tokens of unknown ages, though obvious enough to the modern explorer and settler, escaped the eyes of the Indians referred to, of the Frenchmen of the seventeenth and eighteenth centuries, and of the succeeding British and Ameri-

*Ibid, page 261.

cans of the eighteen and early part of the ninteenth centuries; or, rather, these men seem to have seen them, but as features of the landscape, as swells of the ground, which conveyed no significance. It was not until the time of Maj. Long, in 1817, that artificial earth-works in Wisconsin were noticed and mentioned, and not till 1836 that the further fact was observed by Lapham that some of them were evidently made to represent animate objects. Not the least interesting part of Fox River is that expansion of it known now as Buffalo Lake, situated in the southern half of Marquette County. It seems as if Mr. Lapham, in his official explorations of 1850–1, did not meet with any effigy mounds on its shores. His expression reads: "The mounds examined by me along the Apuchwa and Buffalo Lakes were entirely of the conical form or burial mounds;" but since his time it has become well known that effigies abound at various points on or near them.

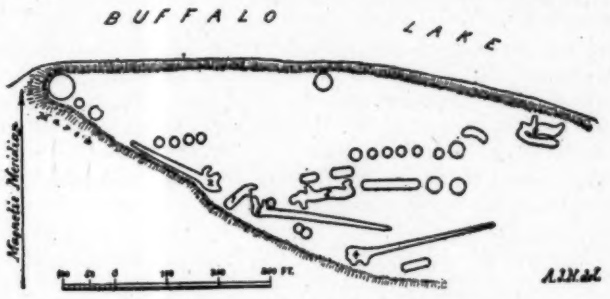
It was my fortune in 1886 and 1887 to spend some time in this valley, and I improved the opportunity by scouring the country on both stdes of the stream in search of traces of its presumed aboriginal inhabitants. Around Buffalo Lake, in addition to the tumuli of Lapham, many effigies were found. Some of them were in a good state of preservation, almost as they were left by their makers' hands; while others were so defaced by the plow-share of the (presumably) more civilized race now occupying the region as to be barely distinguishable in their true character. Many were already well known to the residents of the adjoining towns and occupants of the farms; others were hidden in thick woods or dense brush, and only known hitherto, probably, to the solitary hunter, surveyor, or explorer. They all, however, had to equally submit their outlines to the plain tests of the compass and tape-line.

One of the finest of the groups is on the southwest quarter of the southwest quarter of section 13, town 15, range 9, on the south side of Buffalo Lake, and was surveyed May 31, 1886. These mounds are located on a point, the lake being to the north of them and a spring branch to the southwest. The site, which is about twelve feet above the lake, is used as a camping place by the summer tourists and also as picnic grounds, and it is well adapted to such purposes. The group seems to have no special arrangement, the mounds being located in rather a haphazard way, and consists of thirty-one mounds of several classes, viz.: five animals, twenty round mounds, the largest of which is 50 feet in diameter and 7 feet high, one curved embankment, four straight embankments, and one nondescript (Fig. 1), which may probably be an unfinished animal.

Fig. 2 is an animal with a long tail. Its length, from the end of the nose to the extremity of the tail, is 193½ feet, and the greatest elevation of the body is 5 feet above the general level of the natural surface.

Fig. 3 is an animal with a slightly curved tail. Its extreme length in an air line is 275 feet, and the hightest point of the body is 3½ feet in elevation. Its hind leg is interlocked with the base of a round mound, the latter having been built after the animal was completed, which is plainly shown by the manner in which the two are connected together.

Fig. 4 is somewhat similar in outline to No. 2. Its greatest length, following the body and tail in an air line, is 292 feet, and it is 4½ feet in height at the highest point on the body.



Effigy Mounds at Buffalo Lake, Wisconsin.

Fig. 5 is a nondescript animal of unknown identity. Its extreme length, along the body in an air line, is 123½ feet, and it is 3 feet in height.

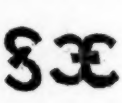
Fig. 6 probably represents a goat, or at least belongs to the goat family, although the horn is abnormally long and thick. Its length, from the tip of the nose to the end of the hind leg, is 92 feet, and the body is 1½ feet in height. This last described animal is apparently the first and only representative of the goat family in a bas-relief that has been handed down to us by the Mound-builders, and in this regard is a very important find. Perhaps it may represent one of the post-glacial family, thus adding another link to the history of "Man and Mammoth." If this surmise should prove to be correct, however, it would rather spoil what may be called the "squaw theory," *i. e.*, the assumption that the Indians built the mounds.

T. H. Lewis.

St. Paul, Minn., December, 1890.

SUN AND FIRE SYMBOLISM.

There is a phase of sun and fire symbolism which seems hitherto to have received but little attention, viz., the presence of such symbols in crests or in the coats-of-arms of many of the oldest families and landed gentry of the British Isles. We find them in the greatest numbers in the armorial bearings of our Scottish families and those belonging to the most northern counties of England; probably for the same reason that they are most numerous on objects which have been found in the northern portions of Scandinavia. Some of the emblems of the sun and of the suastika as a fire symbol and the wheel are in use in some countries to this day as a preservative against fire. A type of fire symbol exists in some parts of England at our very doors. In Gloucestershire and Herefordshire—possibly also in some of the other southwestern counties of England—it is not an uncommon circumstance to see on the external walls of some of the older houses one or two pieces of iron in this form:

 And sometimes thus:

It seems evident that they could not have added much support to the building, since they bolted on to it at one point only—the center. A most interesting explanation of them was given a few years ago by an old family servant who died about five years ago; his age went with the century. He was a Gloucestershire man, and on being asked the reason of the S form of these irons, he replied that "they were made thus S in order to protect the house from fire, as well as from falling down." In the little village of Kingstone, in Herefordshire, it is still the custom of the people on the eve of May-day to take two short pieces of wood and nail them in this form + over the door of a house or stable, removing the one of the previous year. On inquiry why this was done, the reply was, "To scare the witches or the evil spirits away."

H. G. M. A.

Editorial.

THE ARYANS AND THE INDIANS.

One of the strangest revolutions in the matter of opinion that has ever taken place among scholars is the one which has just appeared among the archæologists and ethnologists of Europe. This change has relation to the origin of the Aryans. For many years it has been an apparently established theory that the Aryans were a people who originally dwelt in the plains of Iran, in Central Asia. From this center they were supposed to have spread first to the east, next to the west, thus making the great Aryan or Indo-European race, which may be considered the most civilized race upon the earth. The great advocate of this opinion was the celebrated Max Müller, the Sanskrit scholar, though Sir William Jones may be said to have originated the theory, for he first called the attention of the world to the resemblances of the Sanskrit to the European tongues. According to this theory there were only three original languages—the Aryan, the Turanian and the Semitic, the Turanian being the language of the northern races of Asia and the earliest languages of Europe, such as the Basque and the Iberian, but the Aryan being of southern and later origin. The theory, to be sure, did not quite fix the limits of the Turanian or exactly define its characteristics, nor could it show the relation of either the Turanian to those other large groups of languages found in Africa, in Polynesia, Melanesia, North and South America, and elsewhere. The theory also left the prehistoric races of Europe altogether out of the account, the science of prehistoric archæology at that time being considered hardly worth noticing among the linguistic and oriental scholars. Still, the European ethnologists seemed to be satisfied with the classification, and wrote many books showing how the various languages, such as the Celtic, Saxon, Teutonic, the Slavic, were all connected, and how they had branched off from the old Aryan before the time of separation or migration to the west. The same was true also of the mythologists. Prodigious efforts were made to show the resemblances between the Hindu, the Persian, the Greek, the German, and the Scandinavian myths, as the names of the divinities were supposed to signify the same thing, and the offices of these divinities being similar in all parts of the globe.

All this, however, is changed. "The work of the last ten years has been destructive. The work of the previous half cen-

tury has been revised. Baseless theories have been demolished and the ground cleared for the erection of more solid structures." "While science has been specialized, it has been shown that the correlation of the 'prehistoric sciences' is as intimate as the correlation of the physical sciences. Hasty philological deductions require to be systematically checked by the conclusions of prehistoric archæology, craniology, anthropology, geology and common sense."* The result is indeed a startling one. The "prehistorics," it appears, are no longer to be left to themselves, but are suddenly brought into the midst of the "linguists," and the whole line of tokens, from the "paleolithics" of the gravel beds to the "neolithics" of the long barrows and the short barrows, and from these to the lake dwellings and the rude stone monuments, are all to be studied by the united company, and archæology is exalted to a rank alongside of all the older and more thoroughly understood sciences. The Aryans are no longer intruded races, but are to the "manor born." The prehistoric tokens, which so long remained untenanted and silent, are now "peopled" and the division and identification goes on apparently with very great confidence, and each prehistoric class of tokens is assigned to its own peculiar branch of the same great Aryan race, the survivors being now well known.

Linguistically considered, the prehistoric races are about as silent as they ever were, and archæologically speaking the different "ages" still stand as fixed and firm as ever; the distinction between the gravel beds, the cave contents, the kitchen middens, etc., remains undisturbed, notwithstanding the efforts to make the relics and the skulls speak the same language as that now heard among the living races.

There are also a few discrepancies between the advocates of the new theory, as Dr. Isaac Taylor considers the Aryans allied to the Ugric, while Gerald Rendall thinks the Aryan center was in Scandinavia, or about the Baltic Sea. There seems to be also a variety of opinion as to the color of the *complexion* and *hair* of these prehistoric races. Dr. Huxley rings the changes on the long-headed blondes and the short-headed brunettes, and seems to be inclined to say "I told you so" in reference to the Neanderthal skull itself, while others are less confident and not quite ready to say what kind of a skin actually covered this or the Constadt and what the Cromagnon skull. Still, as the Swedes are fair-haired and long-headed, and there are people in France who are dark-haired and broad-headed, it must be that the "dolicho-cephalics" were Swedes and the "brachy-cephalics" were French or some other southern race.

Not the shadow of a doubt. It has all been made plain. The division occurred in the prehistoric age. The history of the

*"The Origin of the Aryans," by Dr. Isaac Taylor, closing sentence.

Aryans is to be read in the prehistoric tokens. The key to the entire problem is now in the hands of the archæologists. Such is the revolution that has come in our day.

What will the effect be on American archæology? This is the question which interests us. Opinions seem to go in waves. People must follow the fashion.

Quatrefages holds that America and the other continents were formerly connected, and that the peopling of America was from Europe or from Asia. "Man is a cosmopolite, while the highly developed and specialized animals are more and more confined to the continents or to even more limited districts. While some of the ruminants inhabit the north of both continents, and the reindeer and the caribou belong to the same species as do the bison, the Uroch, the Nargali and the Big Horn, none of these animals are found in the warm regions." "There is not a cosmopolite after the manner of man." "Like Polynesia, America was peopled from the old world." Hæckel maintained that the original starting place of the human race was from a center to the south of Asia, the original home of the Quadrumani. Pritchard held that the American races were branches of the same great stock which originally peopled Asia, Africa and Europe. Mr. John Evans said in his address before the British Association "that it will be for the benefit of science that speculations as to the origin and home of the Aryan family are rife; but it will still more effectually conduce to our eventual knowledge if it be consistently borne in mind that they are only speculations."

So, too, among our American linguists it has been a strong conviction that there was a resemblance between some of the North American languages and those formerly prevalent in Europe—some of them resembling the Basque, others resembling even the Aryan itself. Among the archæologists also the attempt has been made to trace resemblances between the earth works and the monuments of the two continents, the serpent-worship and the sun-worship being accounted for by considering them borrowed cults, the symbolism in its detail being very similar.

According to some ethnologists, the migration of races was from different directions, the supposition being that there were different races in America, and that these races came from different continents—some from the north of Europe, some from the north of Asia, some from the south of Asia, by the way of the Polynesian Islands, and possibly some from the coast of Africa, as the portraits, symbols, idols and other tokens remind us of these nationalities. The ethnologists were seeking for the connecting links, hoping to solve the problem in this way.

The drift of opinion is now so strong in favor of the autocthonous character of the races of each of the continents that the cosmopolitan theory may be unpopular. It will be the

greatest heresy to maintain that there ever was any contact between the continents. If there was any contact, it was long ago, during the distant geological ages. No modern migrations. No incursions of wild Indians into the territory of the original Mound-builders. No stray visitors from distant shores. No borrowed cultus. No symbolism introduced from other lands, Africa, Asia, Europe and America. Each had its own unvarying development. "Aryans and Indians are the autocthons of the two continents."

Of course, with the new theory, it will not be expected that the Europeans will now undertake to trace any connection between the prehistoric races of this continent and the older continent, for they will be satisfied with their own explanation and have no need of showing any migrations to other lands. The Eskimos, to be sure, have been traced to the west, and the supposition has been that they originally passed across Behring Straits, and are possibly the survivors of the old Cave-dwellers of Europe. But the Eskimos are the survivors of the paleolithic people of the gravel beds; the wild Indians are the survivors of the cultivated Mound-builders; the Apaches or Navajoes the survivors of the Cliff-dwellers; the Digger Indians the survivors of the people who left their altas and the images beneath the lava beds of California and Arizona; the Mexicans, speaking the Spanish language, are the survivors of the old Nahua races. Therefore, all these varied works, mounds, earth structures, rock built houses, pyramids and palaces, are to be ascribed to one autocthonous race, which only developed separately and never had any contact with any other continent.

The early civilization which was supposed to have come from the historic East is now the result of a growth which appeared in prehistoric times. So, too, the later savagery, which was supposed to have come down upon the early Mound-builders from some northern clime, are only the survivors of the people who always dwelt here and whom we now call Indians.

The Aryans certainly grew out of the caves and developed into the Lake-dwellers and megalithic tomb-builders, and reached a high state of civilization, perhaps unaided; while the Indians mysteriously went the other way—degenerated from the higher to the lower, from the partially-civilized to the savage. But the same theory of the autocthonous origin will account for both. The Aryans and the Indians prove that the culture home must have been in the very midst of the prehistoric works. So one wave goes up and the other goes down, but the sea beats on.

COMPARATIVE ART—HISTORIC AND PREHISTORIC

INTRODUCTION.*

Under this head a certain portion of THE AMERICAN ANTIQUARIAN will be set aside from time to time for the consideration of the problems suggested by the study of the monuments of art, both prehistoric and historic, as objects of art, as distinguished from the monuments which have only archæological interest and do not come within the range of the history of the fine arts. Archæology and art are indeed terms which express many similar things, and it is impossible to draw a line which will sharply mark the distinction between them; but students of archæology are apt to overlook the actual art value of their subject, and in devoting their attention to the antiquarian side ignore its artistic relationship. It is not proposed to reconcile these two positions, nor even to point out where the student of archæology at times refuses to enter the field already occupied by the student of the history of art, but by chronicling the latest developments in the latter department to put into more accessible form the results of modern research in one of the most fascinating and interesting departments of art history.

Archæology chiefly concerning itself with the elementary problems of art, it naturally follows that in an antiquarian magazine special attention should be given to all questions relating to the origin of art forms, to the beginning of artistic ideas, to the evolution of artistic conceptions and combinations, and it will be therefore matters connected with this phase of art history that will here receive especial attention. It should be remembered, however, that the history of art is almost co-existant with the history of humanity. The most elementary stages are to be found among the rudest people, and the artistic conception once formed—no matter its origin, nor the causes which first led man to decorate the work of his hands or to piece out the creations of nature with additions of his own manufacture—was never forgotten, and is to be found in all races and at all times. The history of art shows us that notwithstanding the persistence of the art idea, it has experienced a constant succession of advances and retrogressions. There have therefore been a number of epochs when art, in a measure, began afresh and took a new lease of life, usually in a line differing from the pre-

*This Department is conducted by Mr. Barr Ferree, Lecturer on Art and Archæology in the University of Pennsylvania.

ceding one. The oldest historical form of art—the Egyptian—exhibits no preliminary stages; it is not only without introductory steps, but the earliest monuments are superior to the later ones. In Assyria less advanced monuments are to be found, but nothing has yet come to light that can be said to illustrate the origin of Assyrian art. Greek art exhibits a rich variety of early forms, and it is possible to study its development from the crudest forms to the most complete. With the collapse of the Roman empire and the barbarian eruption the artistic instinct became well-nigh extinguished, and art had almost to experience a new birth before it could develop again. Still keeping to the art of civilized people, it should be noted that sundry political and social causes led to the origin of the Byzantine and Mohammedan forms; unlike Christian art, they exhibit no elementary stages of their own, but are simply developments of certain stages of the older art.

Each form of art has therefore its own origin, which is not the less marked because it is at times a new evolution of an older form. Many interesting problems center in these early periods, and frequently light gained by the study of one epoch will make clear doubtful points in another. A study of the origins of art, or of artistic movements, is not the study of the most primitive forms only, but a survey of all periods at which a new element is introduced, a new style evolved, a fresh impulse created.

In studying these problems of historic art, the vast mass of material lying inside of the American field will not be forgotten. No review of the beginnings of art is complete that neglects the monuments of prehistoric times and of the lowest races of men, which to-day represent much the same stage of society as witnessed the evolution of the primitive art conception. Long neglected by the students of the history of art, this has been the special province of the antiquarian. It is here that we have rich finds. Here, at all events, the student of the origin of art must gather most important lessons and most valuable illustrations.

As to the connection between savage art, or primitive art, and the perfected art of modern times, much might be said. It is not, however, necessary to enlarge at present on their mutual relationship, but it should not be forgotten that the latter is the outcome of the former, and that the study of the one cannot but be helpful to an understanding of the other.

NOTES ON GREEK AND EGYPTIAN ART.

In a paper on "Reminiscences of Egypt in Doric Architecture," contained in *The American Journal of Archæology* for March-June, 1890, Prof. Marquand notes the many indications of the Egyptian origin of Greek architecture, without under-

taking to demonstrate its evolution from that form of art, or insisting that the Greek is but a modification of the Egyptian. He notes, in fact, not resemblances nor origins, but reminiscences of Egypt in Doric temple-architecture, in the temenos with its sacred trees and springs and altar, in the temple base, the peripteral supports and the gable roof. He finds "that the Greek preserves the Egyptian methods of construction, even to the use of slanting walls and stuccoed columns; that the temple plan shows reminiscences of the peristyle and hypostyle halls, as well as of the sanctuary; that the diminution, entasis, echinus and annuli of the Doric shaft may be best explained upon the hypothesis of an Egyptian origin, and that the Ionic and Corinthian capitals became intelligible in the same way; that the Doric entablature, by both the form and the color of its triglyphal frieze, betrays its relationship to the Egyptian cornice; and that the ordinary details, whether sculptured mouldings or painted ornament, are mere variations of well-known Egyptian forms."

Considerable dissatisfaction has been expressed that the efforts of the American archæologists were not prompt enough to secure the money ($80,000) for the purchase of the site before the concession was made to the French. The Archæological Institute, through the American School of Classical Studies at Athens, had already carried out a number of important excavations and was admirably able to superintend the work at Delphi. Its earliest work was the excavation of the theater at Thoricus, under the supervision of Prof. Allen. In 1886-7, Prof. d'Ooge began work at Sicyon, which was continued the following year by Prof. Merriam, who also undertook the work at Icaria. Excavations have also been undertaken at Platæa, Anthedon, Thisbe and Assos, in all of which American scholars have proved themselves worthy of the tasks committed to their care.

An important lecture on "The Lotus in Art and Architecture" was delivered by Mr. William Henry Goodyear, of New York, before the Brooklyn Institute, December 17th, 1890. In this lecture Mr. Goodyear presented a resumé of his discoveries on the employment of the lotus as an element of ancient art, which he has expanded in his work on "The Lotus," to be published shortly. The lotus or water lily, he said, claims its origin for decorative purposes in Egypt, where it was used as the symbol of the sun, the resurrection, and of creative power. It was the only form used by them in pattern ornament. These pattern ornaments were later borrowed by the Greeks, and developed by them into the pattern ornaments which became modern property. Much of the pottery excavated in Central America, of very ancient workmanship, bears the same sort of decoration as that of early Egypt. Many of their other forms have also been traced to the same origin. This was centuries before any ship was built big enough to navigate the ocean, and yet we have the

proof of Egyptian influence in America. The question is one which Mr. Goodyear does not attempt to answer directly himself. This, he claims, is the work of the archæologist, while his is that of architecture and design.

Considerable interest has been manifested in England recently over the extraordinary destruction to which the Egyptian monuments have been subjected. In *The Nineteenth Century* for November Mr. Henry Wallis presents a careful survey of the question. The chief source of trouble, he says, is due not to the ravages of the tourists, but to the laws of Egypt, whereby all the discoveries and finds must first be offered to the government. The shrewd "fellaheen" fully appreciate the fact that the government will pay less for their booty than will foreigners. Valuable discoveries are hidden away altogether, or the objects dispersed so as to prevent identification; while if they are of gold and silver they are more likely to find iheir way into the melting pot than into the hands of some careful collector, who if he did not always make known his possessions would at least preserve them intact. The iconoclastic character of many of the Mohammedans is another element that causes the destruction not only of fresh discoveries, but of monuments that have been exposed for years, for the religious fervor of the Mohammedan will not permit him to look upon an image without seeking to destroy it. The attempt on the part of archæologists to uncover too much and the leaving of monuments in unprotected conditions are other causes which lead to their destruction.

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LITERARY NOTE.

The Nation, of New York, is so unfortunate as to have a contributor to whom is assigned the task of reviewing the various books which appear on archæology. This writer sets himself up as a critic, but a critic of the worst kind. Instead of treating an author fairly, and showing him where he may be at fault, or where there may be errors, he garbles a sentence here and twists a statement there, perverts and sets awry all that an author has said, and yet fails utterly to show any knowledge whatever of the subject which he is treating. This kind of treatment is bestowed not upon one book, but upon all. In fact authors have come to understand that if their books are favorably received and are uniformly commended, when this writer comes to review their works he will be an exception to all others. An ogre is supposed to be a creature which seizes upon everything that comes within its reach and tears and blackens it. This writer is not a critic; he is an ogre.

NOTES ON BIBLICAL ARCHÆOLOGY.

PAPERS READ BEFORE THE SOCIETY OF BIBLICAL ARCHÆOLOGY IN 1890.— Egyptian Inscriptions in the Middle Kingdom, by F. L. Wright; Divine Dynasties in Egypt, by Prof. Maspero; A Forgotten Prince (son of Seti I.), by Dr. Weidemann; Names of Isis and Osiris, and the Priestly Character of Early Egyptian Civilization, by Le Page Renouf; Accadian and Chinese Languages Affiliated, by Rev. C. J. Ball; The Tablet of Thirty Stars or Babylonian Astronomy, by Robert Brown; Winged Figures of Assyrian Monuments, by Dr. E. B. Tylor; Inscribed Magic Bowls Discovered in Babylonia.

DR. SCHLIEMANN has left in press an essay written in conjunction with Dr. Doerpfeld, in which he answers Bœtticher as to his discoveries in the Troad.

PAINTED BONES have been found in the Crimea and in Central Asia. Heredotus speaks of this custom as common among the Cimmerians. The Editor once found a skeleton in a mound, enveloped in red ochre. The sand was stained with the ochre for several inches.

THE ZUNI DANCES.—J. W. Fewkes has shown that the Zunis have dramatic representations of their traditions embodied in their dances. This is a modified form of a custom quite common among other tribes.

EGYPT.—The Egyptian Exploration Society proposes to make a topographical map of the valley of the Nile, with all localities of ancient historic interest especially marked.

THE SILOAM INSCRIPTION, it is said, has been cut out and removed. It was broken in the removal. A protest against such vandalism should be sent to the Turkish Government at once.

JADE.—Dr. G. M. Dawson has described the occurrence of boulders of jade partly sawn through on the Frazer River, and Lieut. Stoney speaks of jade mountains on the Kowak River in Alaska. Mr. Kunz also holds to the indigenous origin of jade.

SKULL FROM A MOUND.—Mr. C. L. Webster speaks in *The Naturalist* of a skull from a mound in Floyd County, Iowa, that is more animal-like than the "Neanderthal" skull. It was associated with five others of ordinary shape.

ENGRAVINGS AND CUTS—The Editor takes pleasure in acknowledging the loan of the cuts in this number from the Society of

Natural History of Cincinnati and from Robert Clarke. The cuts of the great serpent in Adams County, Ohio, which were used in number for July, 1890, were from *The Century Magazine*.

DESTRUCTION OF MONUMENTS.—The destruction which has been wantonly inflicted on the mounds during the past few years is lamentable. This is the case especially with the effigies. A society for the preservation of the monumenis should be formed at once.

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BOOK REVIEWS.

Results of an Enquiry as to the Existence of Man in North America during the Paleolithic Period. By Thomas Wilson. Washington, D. C. 1890.

This pamphlet has been prepared by Mr. Thomas Wilson as a bulletin of information on the paleolithic relics which have come to light as a result of enquiry. It appears that the author, who is custodian of the National Museum, has issued a circular to many of the prominent collectors in the Mississippi Valley, enquiring about paleolithic relics in their cabinets, their number, size, appearance, etc. The answers to this circular revealed the fact that a class of relics which Mr. Wilson freely calls paleolithics is quite common, though very few of them are shown to have been taken from any depth beneath the surface, and not a single one in association with an extinct animal. We have already said (see *Geologist* for January, 1890), that relics which have this rude shape may be or may not be paleolithic. Still, it is one step in the right direction. Perhaps the next step will be confirmatory. The collectors will now notice the surroundings and will inform the curator as the proximity of such rude relics to gravel beds, and will compare those on the surface with others found beneath the surface, always taking care not to confound an unfinished neolithic with a finished paleolithic. It is possible that we may ascertain what there is about this paleolithic age in America.

A Study of Prehistoric Anthropology. A Hand-book for Beginners. By Thos. Wilson. Washington. 1890.

There has been a demand for a hand-book on archæology for a long time. Mr. Wilson has, under the auspices of the National Museum, prepared this one, though we fear that the number of copies which have been printed is so few that it will hardly supply even the collectors, to say nothing of the amateurs and other archæologists. Mr. Wilson's method of treatment is such as might be expected. He begins with the paleolithics of Europe and then passes on to the so-called paleolithics in America. He next takes up some of the more common specimens of neolithics, and finally ends with a description of the better finished relics. A noteworthy feature of the book is the tribute which the author pays to the former curator, Dr. Charles Rau. Such kindly words will be appreciated by those who knew the diligent and careful observer and accurate archæological scholar. When there is so much to do in the way of laying foundations and so much uncertainty as to the fundamental principles, it is especially gratifying to see archæologists commending the work which has already been done. Co-operation is needed. Jealousy and variance between workers only hinder progress; co-operation aids it.

ANIMAL EFFIGIES

—OR—

EMBLEMATIC MOUNDS.

BY REV. S. D. PEET, PH. D.,

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CHAPTER VIII—Animal Effigies and Native Symbols.
CHAPTER IX—Villages and Village Sites among Emblematic Mounds.
CHAPTER X—Who were the Effigy Builders?
CHAPTER XI—Indian Myths and Emblematic Mounds.
CHAPTER XII—A Map of the Mounds with the Location of the Effigies.
CHAPTER XIII—Evidence of Serpent Worship among Effigy-Builders.
CHAPTER XIV—The Clan Emblems compared with the Totems of the Dakotas.

The Chicago *Evening Journal* says:

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